

**SUDARSAN**

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## ACKNOWLEDGEMENT

STUDENT'S NAME	IDEA AND HELP IN
SHIVAM KUMAR	PHYSICS, CHEMISTRY, DESIGNING, & SPACE SCIENCE.
SASWAT PATTJOSHI	ECOLOGY, MECHANICAL SCIENCE, LEISURE & DESIGNING.
ASHISH GAIN	PHYSICS, BIOLOGY, DESIGNING, & SPACE SCIENCE.
SASWAT PANDA	ZOOLOGY & SOCIAL FACTORS, .
AAYUSH KUMAR CHAND	ZOOLOGY & SPACE SCIENCE.

**SUDARSAN IS A GREAT CHAPTER WHICH IS BUILT COMPLETELY BY THE STUDENTS OF GRADE 9TH AND HAS BEEN SUBMITTED IN THE PARTICIPATION AS A SMALL TEAM**

EACH AMONG US INDEED OF THE HARD COURSE OF THE NINTH WE HAVE ALWAYS KEPT AN EYE ON OUR PROJECT. THIS PROJECT WOULD NEVER BECOME POSSIBLE WITHOUT EQUAL EFFORTS OF EACH MEMBER IN THE TEAM. NO ONE HAS DONE THE TASK MORE THAN THE OTHER MATE. WE WOULD NEVER HAVE COMPLETED THIS TASK WITHOUT THE SUPPORT OF OUR PARENTS, TEACHERS AND OTHER ELDERS.

### ***SUPPORTING TEACHERS***

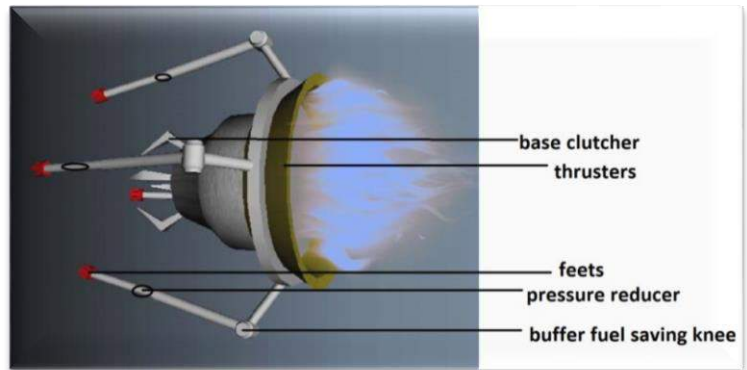
NAME	PROFESSION	SUBJECTS
MISS NIHARIKA	TEACHER	PHYSICS
MRS. SUJA	TEACHER	BIOLOGY
MR. VIJAY	TEACHER	CHEMISTRY
MR. MAHESH	TEACHER	COMPUTER SCIENCE

## THE ASTEROID UTILISING (AU)

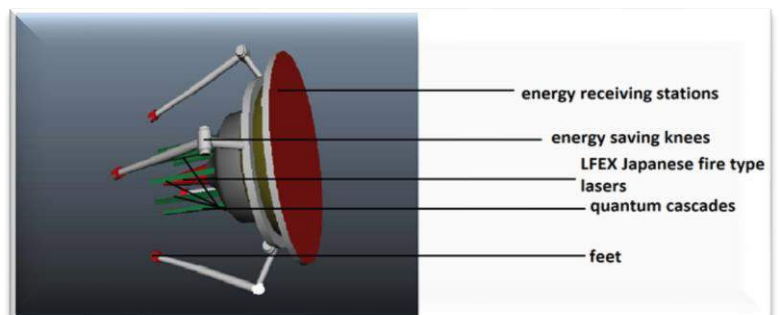
An asteroid is a body which has enough volume and abundant *minerals that can lead to make settlements with an area about* several times more than that of present living space of the Earth. In our settlement we will be utilising asteroids and slowly using for the abstraction of minerals like iron, silicon, magnesium, rhodium, platinum, gold, nickel, silicates, alloys of iron(or ferrous) and silicon, iron - nickel, and several other mineral for the construction of the settlement as well as other useful and supporting materials or equipment. For the construction of SUDARSAN firstly we'll be utilising the asteroid 99942 APOPHIS which comes closest on 13 April 2029 passing through the GEOSYNCHRONOUS Orbit of Earth and thus this asteroid could be caught and further utilised. Actually we will not catch up the asteroid but place it to one of the orbit of earth! This will ensure that the asteroid will be closer to SSF and minerals will be easily extracted and imported to it.

### The things involving in the Asteroid utilization:

a) **Clippers:** clippers are the first utilizers which will function in the AU procedure. The purpose of these clippers is to change the direction (or force in the opposite direction of motion) and to maintain the orbiting of an asteroid. When it lands upon an asteroid, it will force in a velocity which is several times that of the velocity of the asteroid and slowly decelerate it to the orbital velocity to be stationary in GEO, when it enters the GEO. And thus it will help to place an asteroid to ease the distance from the SSF.



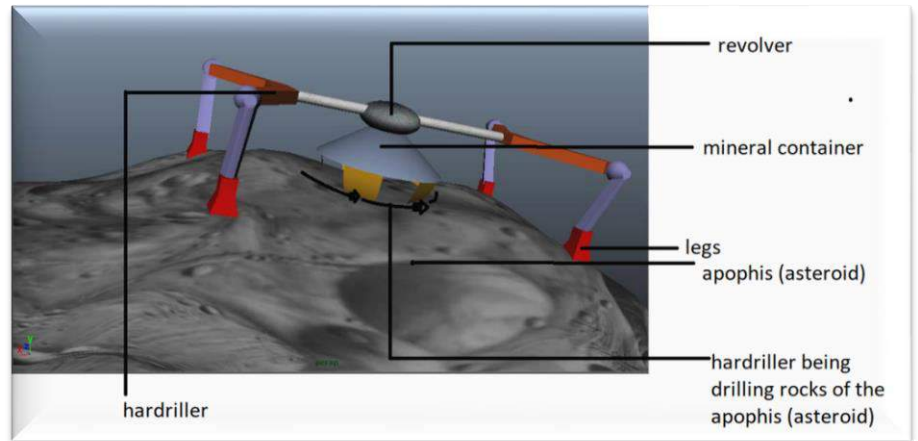
b) **Laslabourers (laser labourers):** The laslabourers will help to ease the major breakdown of the asteroid. Laslabourers with huge supermassive lasers with high intensity will be placed in two oppositely different points in the surface of the asteroid. Once they start to fire the beams they will slowly move to their opposite partner's position in path of circumference and distance between them as the diameter, and the asteroid is cut in two (or more) parts.



## c) Hardrillers (hard drillers):

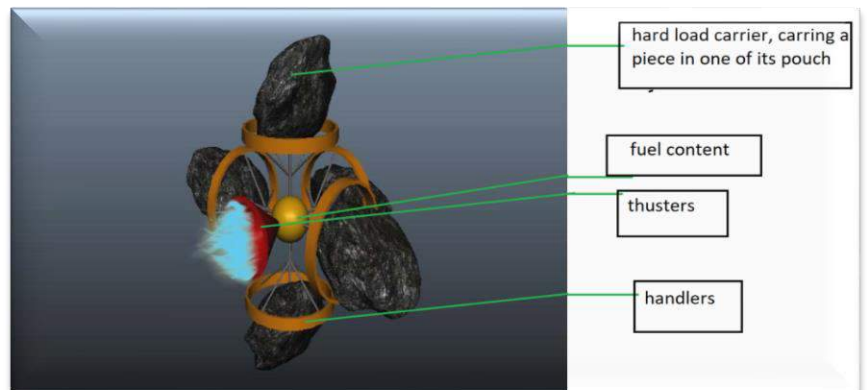
Unlike the Laslabourers, the load carriers will help to abstract minerals from the asteroid in minor quantity. It will actually inject its plates with blades into the surface of the asteroid and start rotating. In this process the minerals from the asteroid's surface will

come into the space between the plates. After filling the minerals in the volume, it will import the raw minerals in the Loadcarriers.

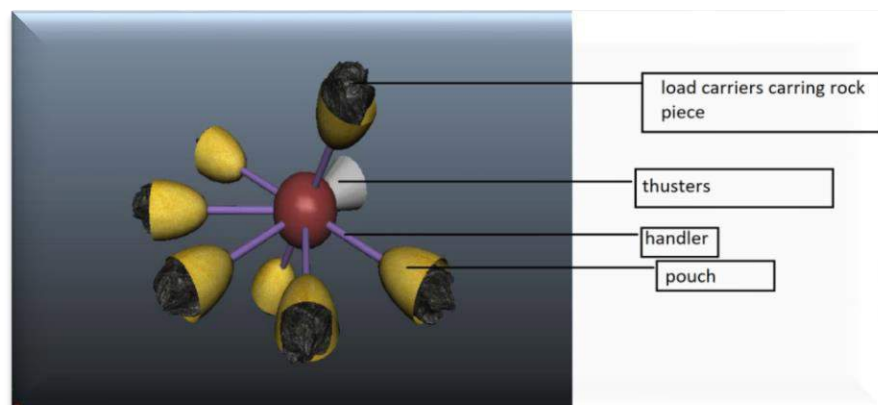


## d) LOADCARRIERS: Loadcarriers are the bodies, which will function as a transporter and port the minerals collected from the asteroid by the Hardrillers in SSF. These are of two types:

- 1) Heavy Load Carriers (HLC): The type of load carrier where large, hard rock pieces from the asteroid would be collected and place them in the holders of LS<sub>2</sub>, LS<sub>3</sub>, respectively on SSF.



- 2) Soft Load Carriers (SLC): It is the load a carrier where soft soils from the asteroid would be imported to the SSF in the mouth of LS<sub>1</sub>.



The construction of the massive CLIPPERS, LASLABOURERS, HARDRILLERS, and LOADCARRIERS will begin at **2022** and must end till January **2029**.

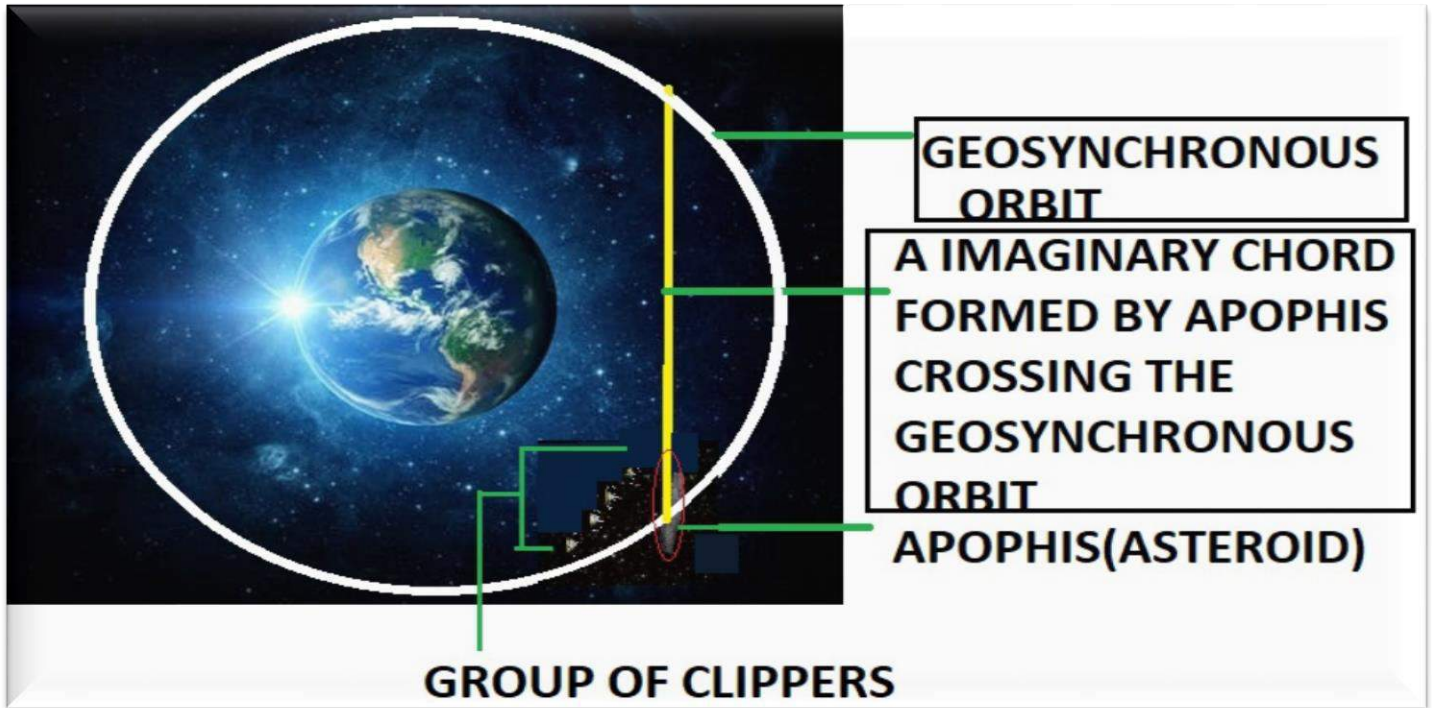


## A.U. SEQUENCE

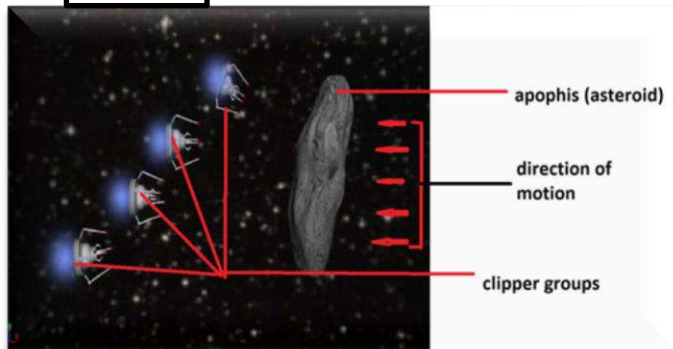
On 13 March 2029 the asteroid Apophis will come closest to the earth. While moving in its orbit (around sun) it will enter to the earth's gravitational zone; it will then change its direction and will enter into the geosynchronous orbit of the earth and leave it after sometime as it will be in a great velocity. In this procedure it will form a slight curve chord path in the circular geosynchronous orbit. As the construction of all the clippers will complete till January 2029, they will be launched from the earth and sent to the geosynchronous orbit. At the point of entrance of the Apophis these clippers will get stuck to it at its face. After they get stand on the surface of the asteroid they will immediately start 'on' the boosters and force in the opposite direction of motion of the asteroid. They will force about several times than the velocity of the asteroid. Doing so, these clippers are actually decelerating the asteroid's velocity. The deceleration will continue till the asteroid catches the orbital velocity of the geosynchronous orbit in its actual point of departure from the orbit. Now the asteroid has gotten the orbital velocity of the orbit and thus it will keep on taking revolutions around the earth on the geosynchronous path. If in case the orbital velocity is disturbed, then again the clippers will force on the opposite direction of the asteroid's motion and thus the geosynchronous orbit (as a mean path) will be always maintained by the asteroid till it get completely used up by the SSF. In the other words we are actually inserting the huge Apophis (of average radius 185 meters) in one of the orbit of the earth and thus it confirms that the distance of asteroid to SSF is reduced (as SSF is too in geosynchronous orbit), also the asteroid is not missed and this procedure make sure that the probability of Apophis hitting the earth is 'zero'.

Now since the asteroid is caught it needed to be broken down to ease the utilising process. It's now the turn of the Laslabourers to function. Firstly the Laslabourers will land on the surface of the asteroid in exactly opposite direction of each other, thus forming an imaginary chord between them in the asteroid (if the asteroid is seen as a circle). Then they will start firing the laser beams onto the asteroid, Once they start beaming they will slowly move to their opposite partner's position in path of circumference and distance between them as the diameter, and the asteroid is cut in two (or more) parts. At the same time, during the functioning of the laslabourers, the Hardrillers would be digging out the minerals from the asteroid. The process is quite simple; for the soft and loosely packed soils, the Hardrillers would simply dig the soil and catch it and put in the load carriers and for the hard lands of the asteroid, the Hardrillers will first keep their plates (blades) on the surface of the asteroid and start rotating them and slowly inserting them into the rock and loosening the surrounding of the main rock and now this rock could be dig out and put on the loadcarriers. This procedure of Hardrillers will continue till the asteroid is completely used up. After all this, it is now the time of the loadcarriers to complete the sequence of the asteroid utilising procedure. The function of the loadcarriers is transportation. It will receive the soils and rocks taken out by the Hardrillers and import them in SSF. And at last the SSF will convert these minerals into final products

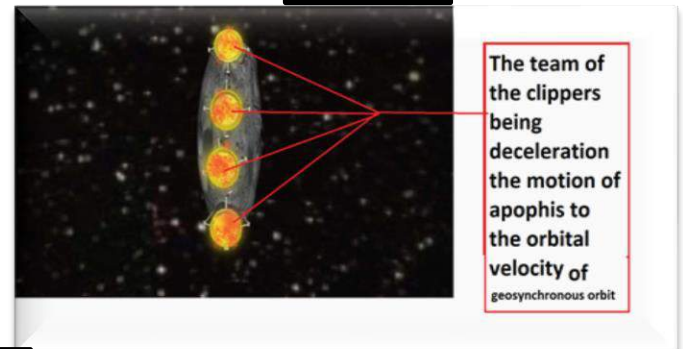
## THE SEQUENCE OF ASTEROID UTILIZATION



Step-1



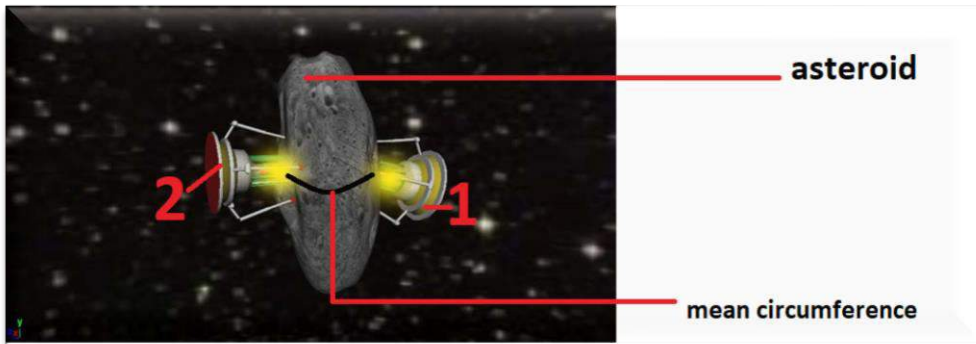
STEP-2



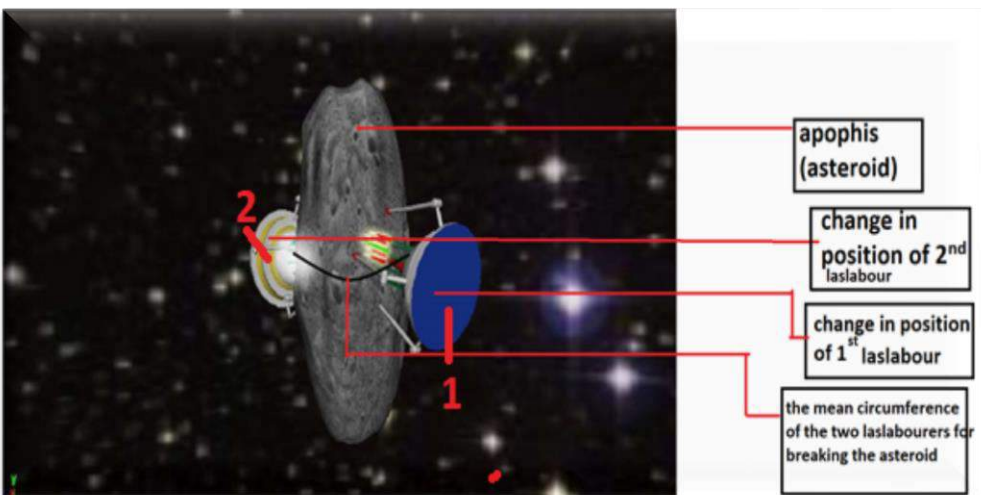
STEP-3



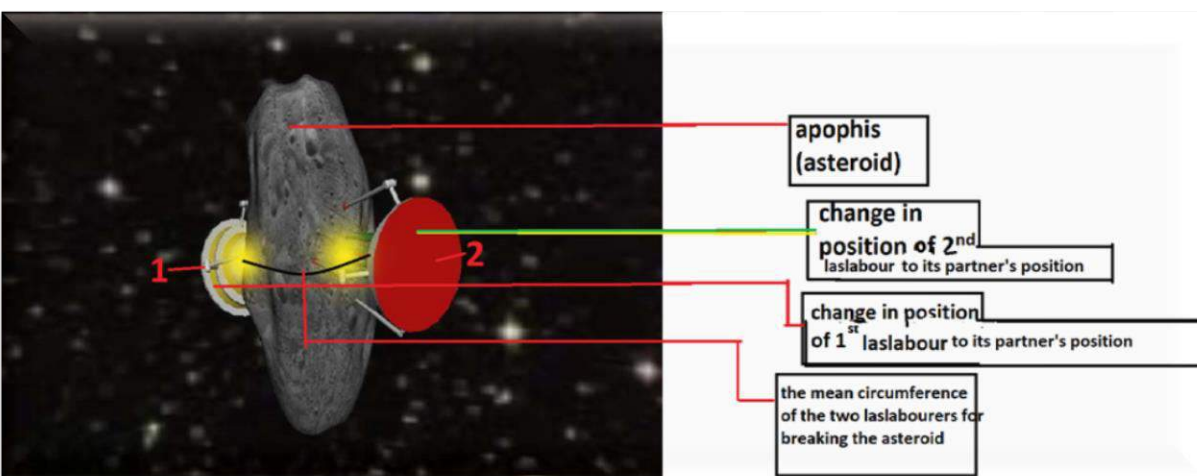
## STEP-4



## STEP-5

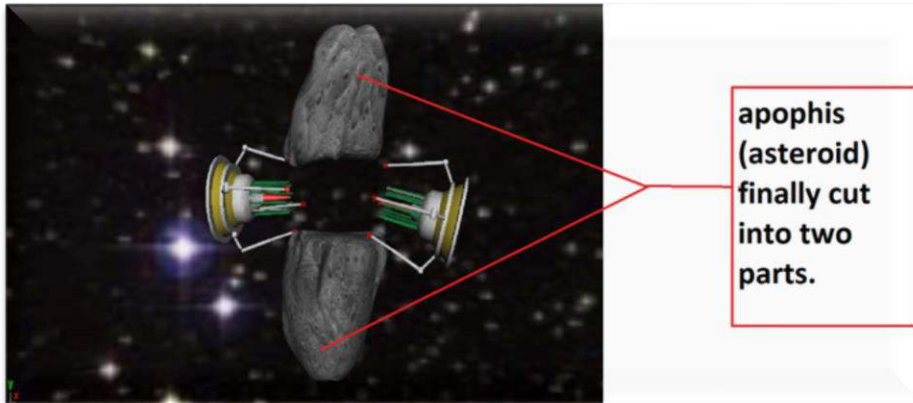


## STEP-6

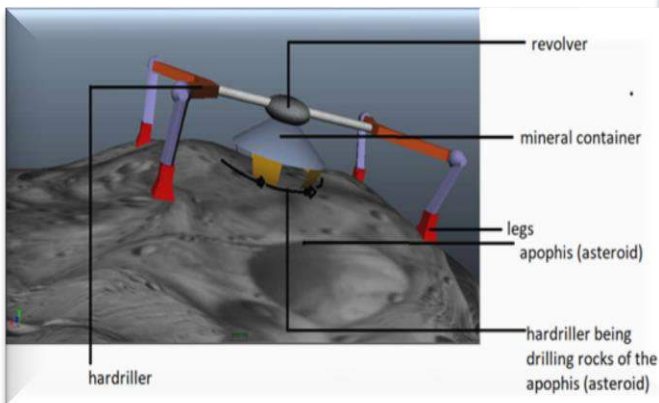




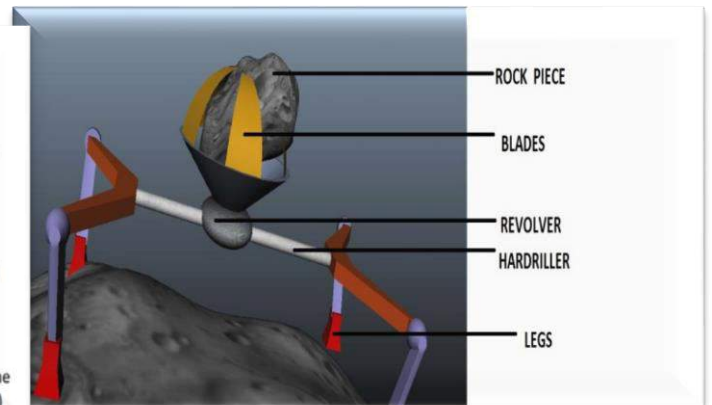
## STEP-7



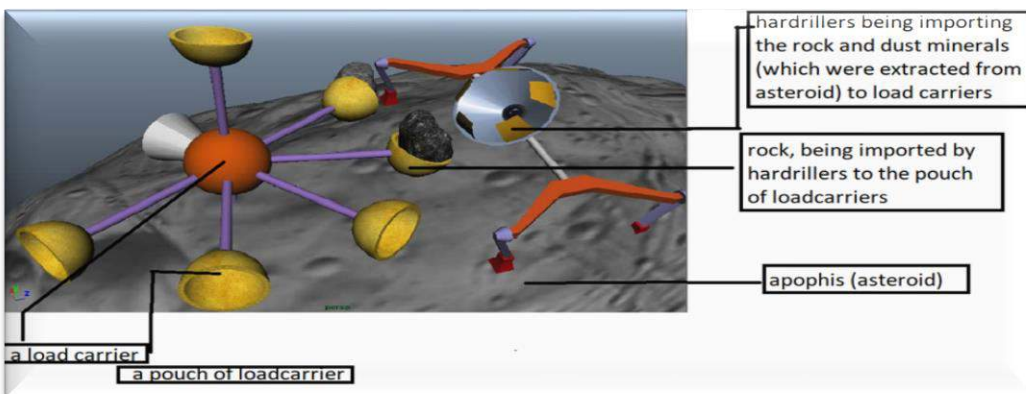
## STEP-8



## STEP-9

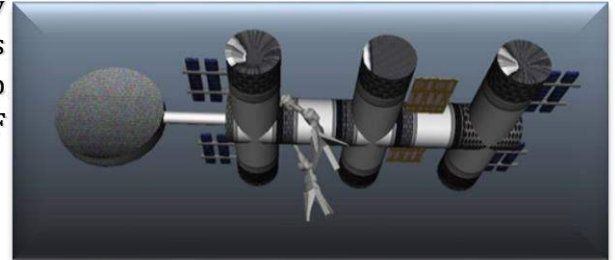


## STEP-10



## SPACE FACTORY

No large incident in the world have taken place directly and succeeded in its first step. The large settlement is likely impossible to be constructed in an easy mean. So we will deal the construction with the help of SSF (Sudarsan space factory).

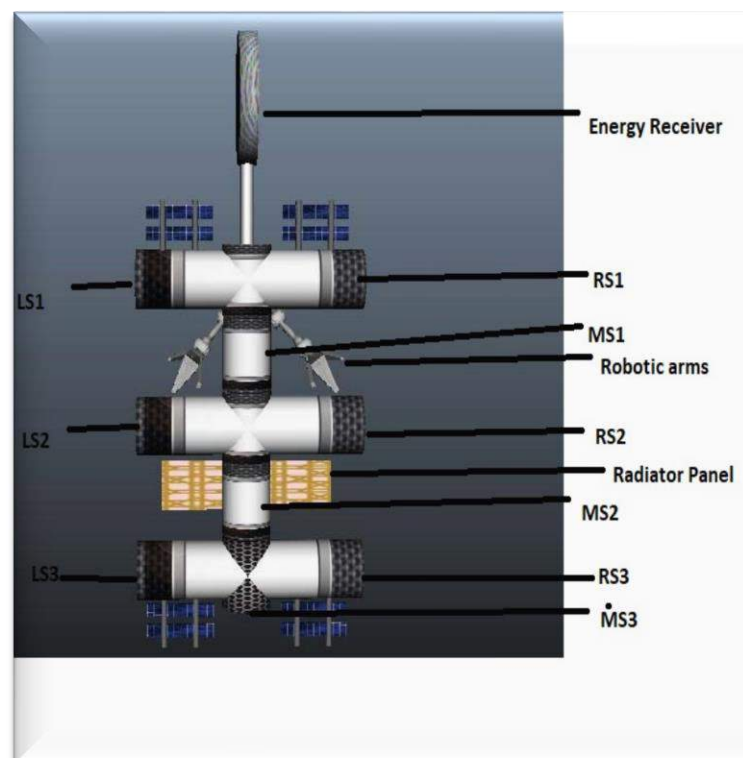


**Construction site:-**The construction of the SSF will be done on the geosynchronous orbit which is nearly about 35,786 km (22,136 miles). We have chosen this site for construction because in the year 2029 a huge asteroid name Apophis will cross through this orbit and it consist of huge amount of different kinds of minerals that we will utilize. It is also the nearest orbit from the earth where the Apophis will cross.

**Construction period: -** The construction of SSF will start in the year 2023. The construction period of the SSF is divided into three parts

1. from 2023 to 2025
2. from 2025 to 2028
3. from 2028 to 2030

**Outer construction: -** The construction of SSF will start with the construction of the middle face (MF), which consists of seven modules. The diameter and the height of the each module of the MF will be about 50m; the total length will be about 350m. This MF will be often called as the back bone of the SSF. The construction of the MF will nearly take about 2 years. Initially the modules of MF will equip with all the equipment and materials which will help in the further construction of the SSF modules. It will also have the robotic arms at the every vertex of the each module of MF. Once the construction of the MF will get completed, these robotic arms will get activated. These robotic arms will less with the advance automatic (AI) system. These AI robotic arms will help in the further construction of modules of the SSF. In the four module of (MF) will have two further module joining called Lefto side (LS) and Righto side (RS) and in between the module of MF will called as Mido side (MS). Total it will have five (MS) three (RS) and three (LS).After construction of (MF) the construction of 1RS and 1LS will take place.

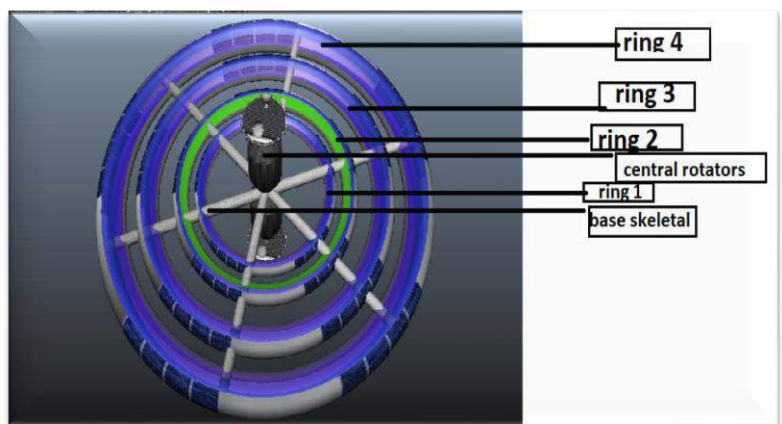




Then the two sets of solar panel will establish on the 1LS and 1RS each. It will establish mainly for the functioning of the SSF. When all the construction will be completed it will develop two radiator panels which will help to release extra heat from the SSF. It will consist of two main docking yards in the (MF) one in MF (1MS) and another one in the MF (4MS). MF (1MS) will generally for the entrance of the required goods, minerals carried by the load carriers from the APOPHIS which will be vital for the construction for the Sudarsan. From the MF (4MS) the finished product will be supplied to the loadcarriers that will carry the product to the Sudarsan. SSF will also have the docking facility in all the four (LS) and (RS). It can also develop the further modules attach to all the four RS and LS, if it will require to extend.

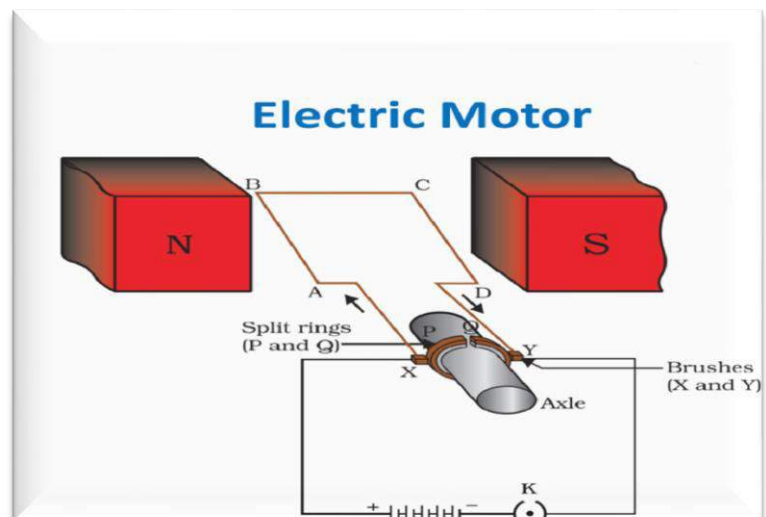
## STRUCTURAL OVERVIEW OF SUDARSAN

The best model of structure comes when every necessary topic is covered in the particular structure. Our settlement is made in keeping a great look in gravity production, pressurised atmosphere, and all life supporting things. The structure is divided into the **rotating rings**, the **base skeleton**, the **rotators** and the **disks plates**.



**Central rotators:** - In our settlement only two parts namely the base skeleton and the rotating rings will only rotate on the mean axis of sudarsan. Here both, the rotating rings and the base skeleton will together function as one apparatus where the vertical cylinders of the base skeleton are the same axle for both the motors. The central rotators will participate in the rotation of the rings. These rotators are nothing but function almost like that of a common motor. so it's here the definition of the definition of a motor An electric *motor* is an electrical machine that converts electrical energy into mechanical energy."

- 1) When electric current is passed into the rectangular coil, this current produces a magnetic field around the coil.
- 2) The magnetic field of horse shoe-type magnet then interacts with the magnetic field of the coil and causes the coil to rotate continuously.



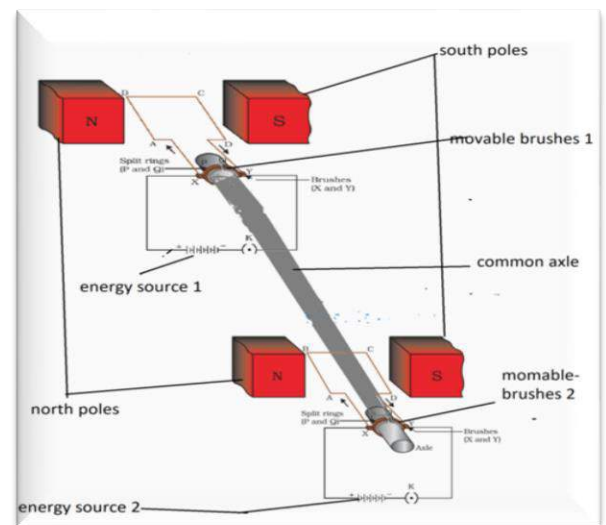
- 3) If ABCD is in horizontal position current from battery enters the coil through brush X and commutator half ring C: The current flows in the direction ABCD and leaves via ring and brush Y
- 4) The direction of current is from A to B, the direction of current is from C to D. The force on side AB of the coil is in the downward direction. Whereas the force on the side CD of the coil is in the upward direction. ABCD rotate in anti-clockwise direction.
- 5) While rotating when the coil reaches vertical position then the brushes x and y will touch the gap between the commutator rings and current to the coil is cut off. But the coil does not stop rotating because it has already gained momentum.
- 6) The coil CD comes on the left side and AB comes to the right side. Again they come in contact with brush x Current direction is reversed.
- 7) The reversing of current in the coil is repeated after every half rotation due to which the coil continue to rotate as long as current from the battery is passed through it. The rotating shaft of electric motor can drive a large number of machines which are connected to it.

Given above was an example of one simple motor. But in our settlement we have a very peculiar and complex structure of two motors (the central rotators) which will have a common axle. As shown in the given figure. (PHYSICAL DIAGRAM OF A MOTOR)

In the above figure the position, direction of flow of energy, position of the two different poles (i.e. north and south), passage of energy in particular brushes and the attachment of specific terminal (of a cell or battery) on the very particular brushes (X, Y) are all same in both the motors, having a common axle, thus this axle will rotate in one direction. According to this diagram the axle (axle skeleton of sudarsan) will rotate in anticlockwise on its mean axis. Hence the whole apparatus (the rotating rings, base skeleton) will rotate in a same direction even if two motors are turned "on" at once. The procedure of rotation: as mentioned above that we will not be using only one rotator but two. These two motors will start functioning alternately (means completion of one and then another). Each motor will function for 12 hours a day; in other words the in both of the motors, they will function once a day for 12 hours. The reason of keeping two motors rather than one is because of the following reasons:

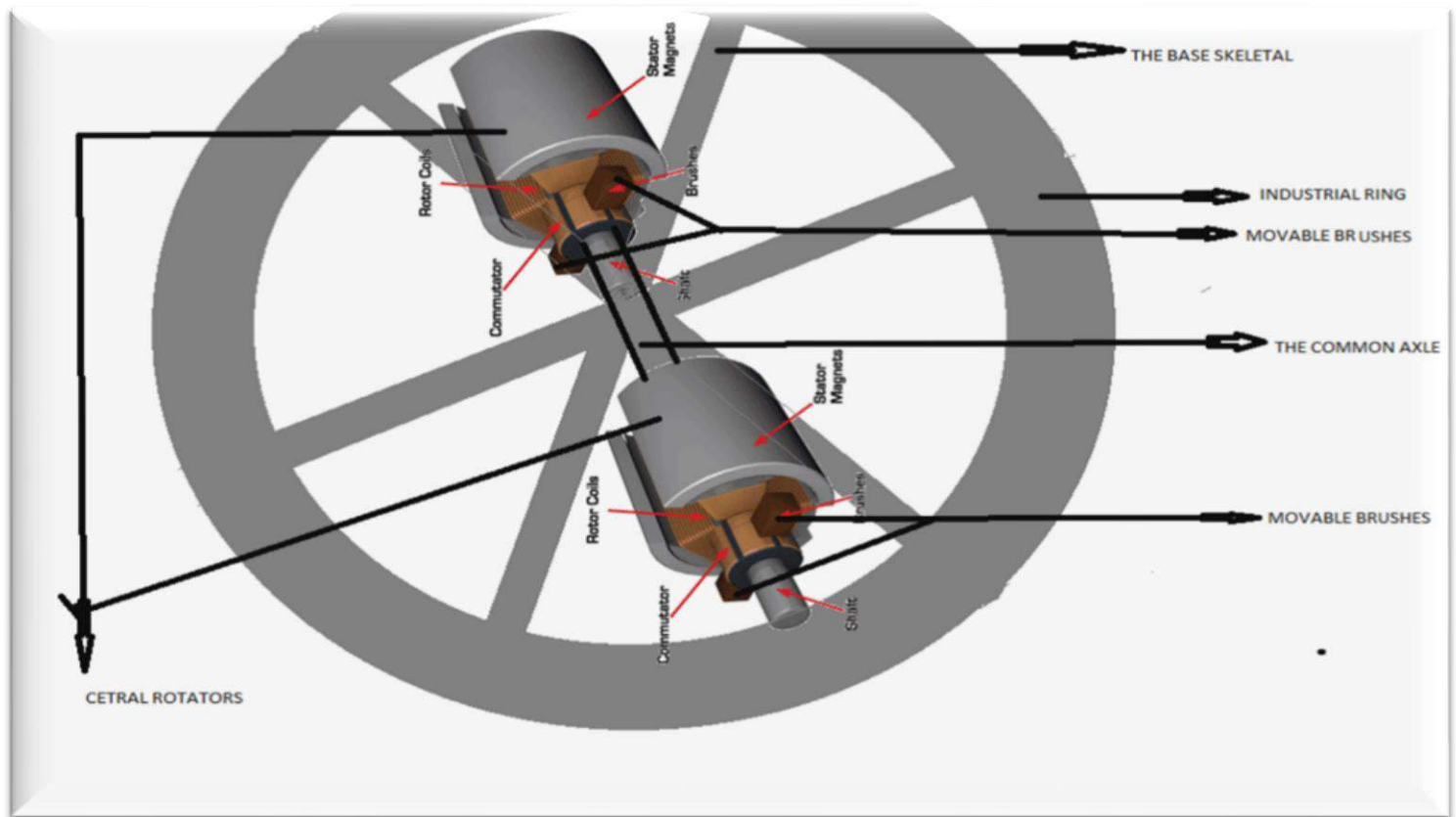
The continuous working of one single motor throughout the lifespan of sudarsan is impossible as a continuously working motor will become hot due to the continuous magnetic effect, and flow of electron (even electricity) can heat up the apparatus (here the central rotators) and destroy it. The second reason is the situation of emergency, where the functioning of the motor has failed then all the population will not have gravitational force (centrifugal force or pseudo gravity) and everything residing inside the settlement will become a part of destruction and mess.

We have kept the movable brushes because whenever a motor is needed to be stopped it is the brushes which permit the stoppage. The working of motors will be possible only when the brushes are allowed to touch with the apparatus in magnetic field, and if he brushes are not connected with the apparatus then the coil system will not work as a solenoid and will not





rotate. When the function of one pair brushes will complete then it will be detach from the axle (of first motor) and the other pair of brushes will attach with the axle (of second motor) and take the functioning part. Thus the idea of a movable is apt in the rotators.



**Will not this continuous rotation of the axle radiate energy (radiation)? (Radiation prevention)**

As we all know that anything during the rotation radiate energy. Here the central rotators will rotate the axle (here the axle skeleton) and thus due to continuous rotation, it will radiate energy. This radiation will cause a great harm for the population inhabiting "SUDARSAN". To prevent this we will decrease the escape of radiation from central rotators (as people will also travel through this) and prohibit the radiation released by the central rotators to come inside the settlement.

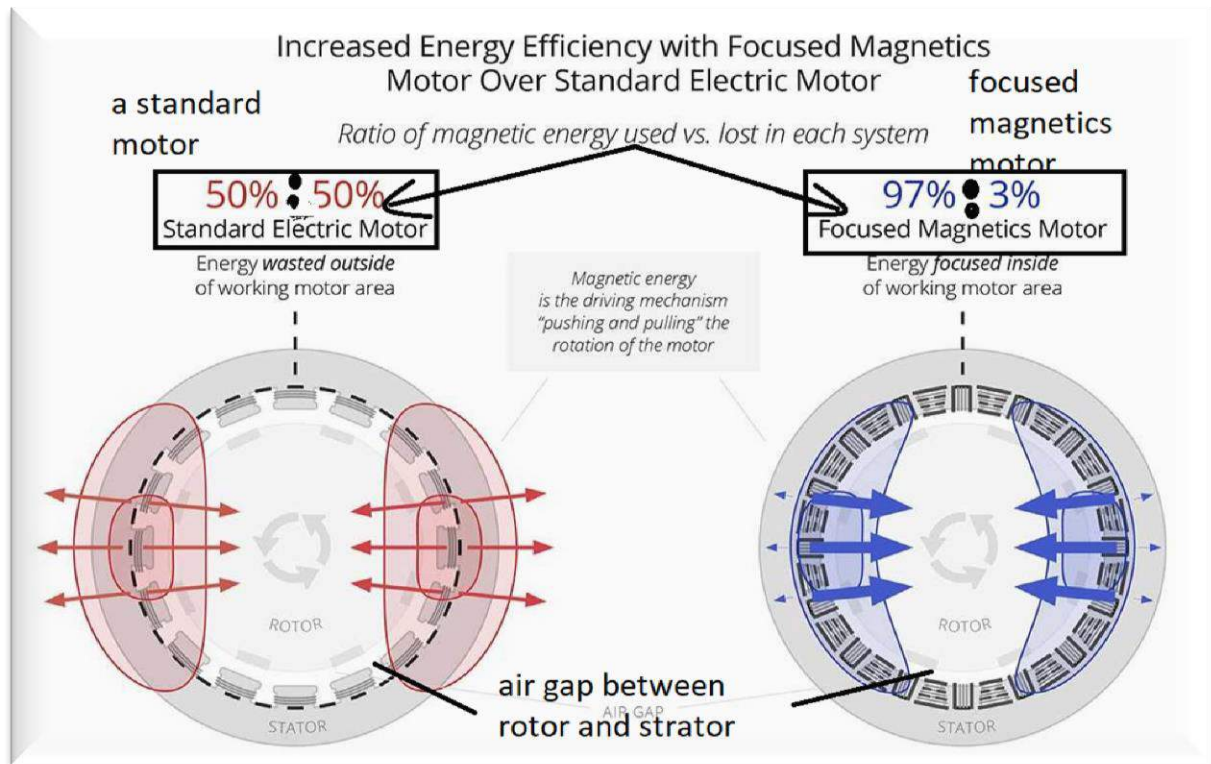
Decreasing the internal radiation (radiation released by central rotators): A standard motor is made up a stator (the stationary part) and rotor (the moving part) but actually the main electromagnetic effect or the function of an electric motor takes place between the gap of stator & rotor. This is because the very conventional electric motor uses magnets and electromagnets with equal polarity (50% for South Pole and 50% for North Pole). Because of more air (or space) gap half of the energy (50% of the total energy) leading to the escape of energy (radiation). But the recent research has claimed that if the gap between the stator and rotor is reduced to maximum then a huge energy will be used to create the magnetic effect (about 97%) and a very less energy will radiate (escape) outside (about 3%). In this way the radiation from the central rotators will reduce about seventeen times than the original intensity of radiation.

This motor (which has very less gap between the stator and the rotor) is actually known as **focus magnetic motor.**

Using the **focused magnetic type motor in our settlement** will help in (in spite of radiation reducing):

Reducing wastage of energy and increasing the speed (in other words reducing the torque)

Conservation of energy up to a 94% in increase and that energy could be used for other purposes.

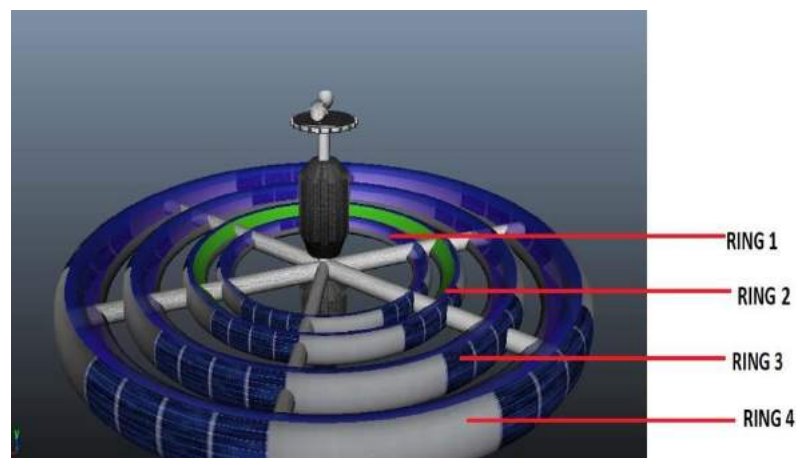


## **The rotating rings:**

In accordance to the centripetal acceleration (or artificial gravity) we need a circular ring with a height to lead a two dimensional area having a circular length and height which gives an optimum space for the population living and production activity, leading up to the successful settlement.

Sudarsan will compose with four rings. Each ring will have their own components.

•**First ring** generally call as the industrial ring because this is the only ring in the Sudarsan which will have industry, from where all the goods will be manufactured & supplied. We have taken the first ring as the industrial ring because in the first ring the acceleration will be the





least (than the other three rings), so that it will be easy to carry the load & even it will ease the manufacture process as the torque of the machines will be less therefore the load on the machines will decrease.

•**Second ring** is also called as the Agriculture ring because the second ring will carry most of the agricultural works. All kinds of food grains, fruit, vegetables cereals etc. will be supplied from this ring to all the other four rings of sudarsan. We have selected the second ring as the agricultural ring because it is almost near to all the rings. So it will easy to supply the goods. As it close the industrial ring also, it will supply some goods to the industry even very easily, from where these goods will again convert into finished product and supply to the other all rings.

•**Third ring** will also call as the recreation ring because it is specially made to give pleasure to the people. This ring will compose with the beautiful scenarios which will give delighting sensation as they are in heaven. It will equip with the different kinds of gaming facilities and other stunning gears such as artificial hills, artificial river, and ponds. It will also compose with some animals that will give the natural satisfaction.

•**Fourth ring** also called as the population ring. This is the most important ring among them all because this ring will compose with residencies and the people will live here. The maximum population of the Sudarsan will be about 15,000. Houses will be arranged in a cyclic manner. Houses will be from the both sides and in between their will be the way for transporting. In each house minimum five people will live, so as our population is 15,000, it will require nearly 3000 houses.

**Disks plates:** The disks plates are located at the two successive ends of the central axle (axle skeleton). The lateral surface of these three dimensional disks will have two types of circular disks namely the docking disks and energy receiving station (disks). The docking disks will help to import or export product and make travelling possible between:

A Sudarsan to another sudarsan

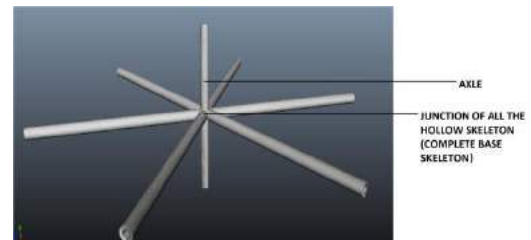
- One sudarsan body to another sudarsan body
- Earth to sudarsan (or vice versa)
- One celestial body (which is being researched by astronauts) to sudarsan /sudarsan body
- SSF to sudarsan (or vice versa)
- The docking disks will have special robotic arms for systematic docking process of a body into or out going sudarsan.
- The energy receiving stations will function to receive and save energy. So when the disks plates are seen as a whole then it functions are:
  - To receive energy
  - To save energy
  - To receive and export products, goods, humans etc.
  - Make external and internal transport easier
- 1. **Ease the transportation and trade:** Person, people, produce, goods, etc. who/which were to be brought to sudarsan, they have to boost their speed to more than the velocity of the disk plates (if disk plate rotate on their axis) to maintain the same coverage of angle

per unit time as that of the plate on its centre, and then slowly the body could be docked into sudarsan. So these all problem could be solved if the plates are made stationary on their axis (not rotating).

2. Make energy receiving possible: The microwave and laser energy can only be focused in one particular place in order to make the energy giving and receiving process successive. If the place of receiving displaces from the mean position (during rotation) then the energy waves could not reach to sudarsan and cannot utilized by the people. So if the disk needed to be stationary at its position, we also need to make the plates stationary.

These plates also help to ease communication between planets, earth, moons, sudarsan bodies etc. It is also the place from where the live shows going on earth could reach sudarsan.

**The base skeleton**: It is the first part of sudarsan to be constructed. It is a typical structure of complex-hollow cylinders forming one single body. When three hollow cylinders are kept in one place such that the tubes are kept equidistant from the adjacent tubes, subtending a circle at the centre. This circle is then to be given a height both from upward and downward directions. Finally forming the base skeleton (named after sudarsan skeleton or mechanical support). Now in this body the central rotators, rotating rings and disk plates could be constructed. This skeleton is the bones of sudarsan which will give the settlement a better stability and put all the life survival process together.



## LOCATION

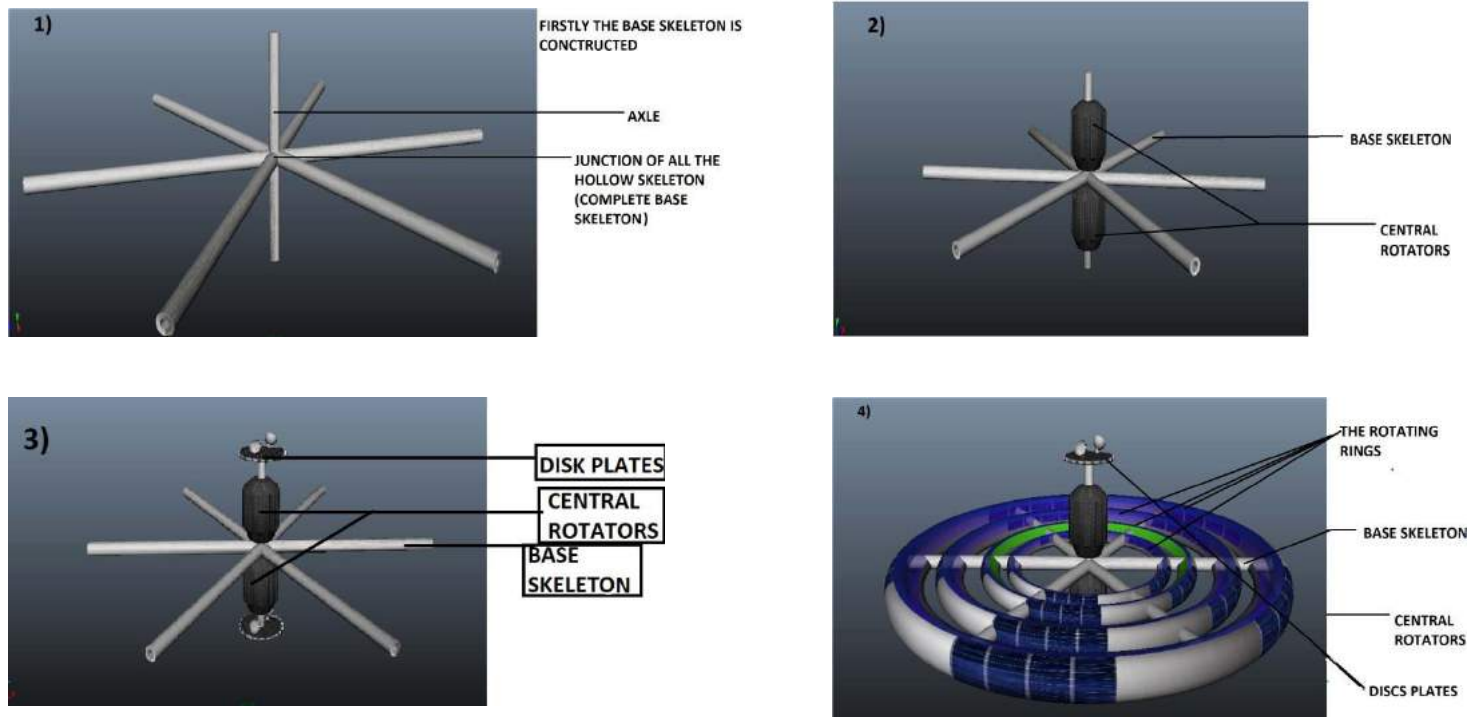
Initially the construction of the Sudarsan will start on the geosynchronous orbit, which is about 35,786km from the earth. As the SSF and Apophis both will present in the same orbit, so it will easy for the SSF to utilize the minerals from the Apophis and construct the Sudarsan. Once the construction of the Sudarsan will complete and all living situation will satisfy. We will take the people from the Earth. One more reason to keep the Sudarsan on this orbit is that, this is the only nearest orbit from the earth where the Apophis can be utilize and it will easy to send the people from the earth to the Sudarsan. Once the require people will send to the Sudarsan. The SSF will start constructing the Updated Sudarsan which will nearly similar to the first Sudarsan. The new Sudarsan will again send to the orbit of the Mars. It will utilize the minerals from the surface of the mars.

## CONSTRUCTION SEQUENCE OF SUDARSAN

The construction of the Sudarsan will begin with the construction of its base skeleton. The base skeleton will have six spokes the middle two spokes called (Axle) will have two central rotators joining to it. Once the construction of the base skeleton will get complete, the construction of the central rotates will start after the construction of the central rotates it is the term to construct



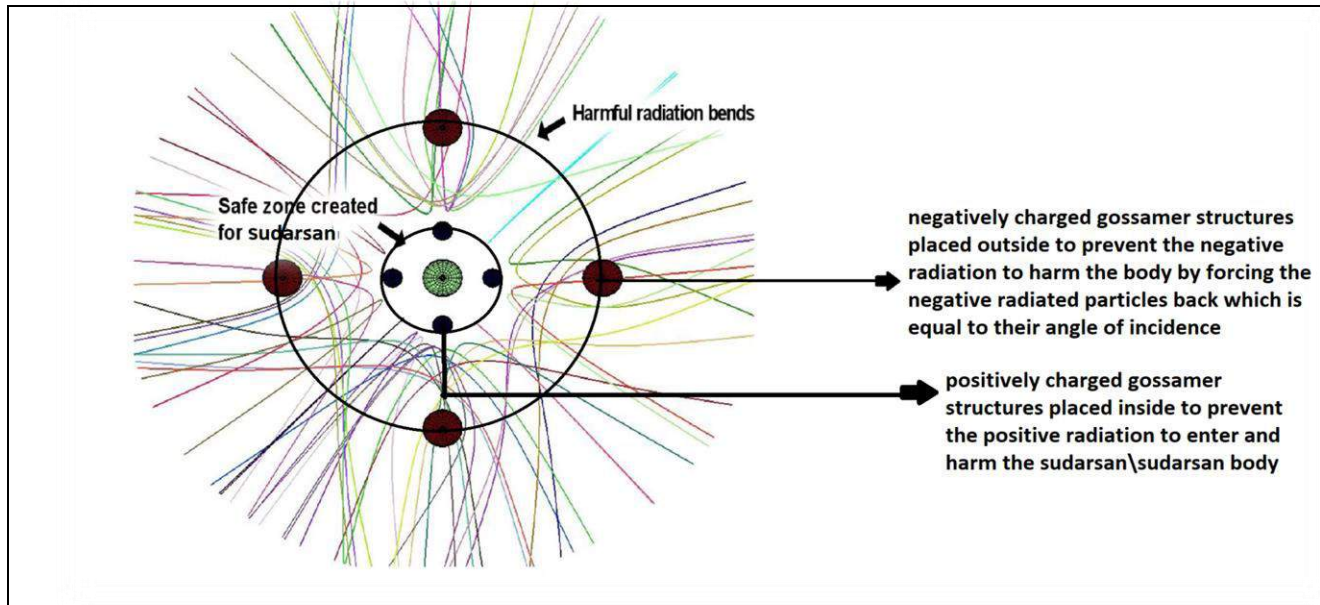
the rings of the Sudarsan. So we will begin the construction of the ring with the edifice of the Industrial ring, then the construction of the agricultural ring, then the recreation ring and the finally the construction of the population ring will take place. Once the construction of all rings will get complete, then the establishment of the signal tower will take place at the two disk plate. Then the solar panels will arrange outside the each rings of the sudarsan. In this way the construction of the Sudarsan will take place.



## PROHIBITING THE RADIATION FROM EXTERNAL SPACE : (RADIATION SHIELDING)

There are several ways to prevent the radiation to come inside the settlement and cause harm; but here we have adopted the peculiar electrostatic effect. We all know that according to electrostatics the two positive charges will repel when come closer and same with a two negative charges when brought closer. We will actually coating the settlement with two gossamers of positive and negative respectively (Which are very strong and of 10 cm each) which will be separated by a gap of 20cm and all together making the settlement 0.4m long. When the positively charged radiation (energy) will come closer to sudarsan then it will get attracted by the negative charges and try to go inside the settlement but when it reaches to the

positive gossamer then the radiation will bounce back (due to repelling characteristic of same charges when brought nearer). And when the negative charge will come near the settlement then it will bounce back when repelling force exerted by the negative gossamer on the negative



radiation. In this way the whole settlement will be protected from all the harmful radiations.

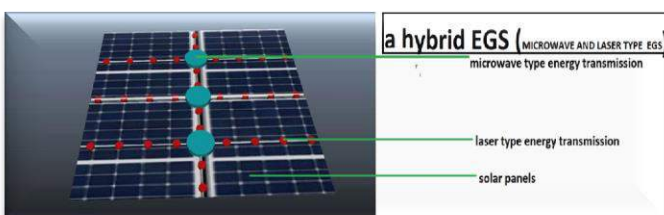
## ENERGY GENERATION

### ENERGY GENERATION STATIONS (EGSS)

As Sudarsan, SSF, laslabourers, Hardrillers, space hotels, space parks and several other space recreations and Sudarsan bodies require a large amount of energy as a large population of both humans and non-humans will be living there and it will be absurd that solar energy, which are attached on their surfaces will completely satisfy the need of energy. It is not, we require even more energy so to do so we hereby introduce the idea of EGS. An EGS will be a separate body which will be utilising solar energy from the sun to generate electrical energy which will be further sent to the Sudarsan bodies in a wireless mean.

The structure of the EGS is quite simple. It will have a middle cylinder and large solar panels attached to it. The EGS will be of two types depending upon their type of wireless energy transmission. These are MEGS (microwave type energy generation stations) and LEGS (laser type energy generation stations). these EGSs are actually the energy generators which will

generate the energy and transmit it to a Sudarsan body. And to receive the energy in a Sudarsan body we'll be keeping some energy receivers, which will actually receive the energy and supply it within.

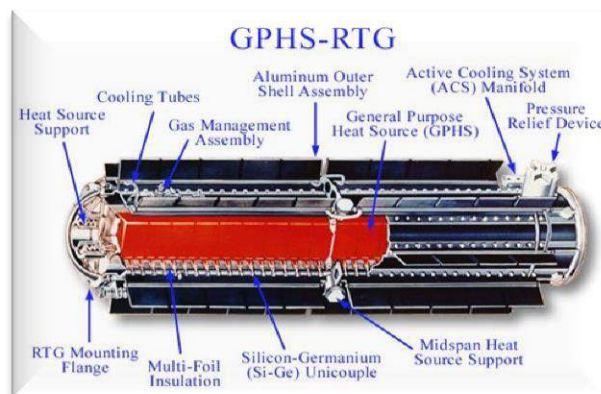




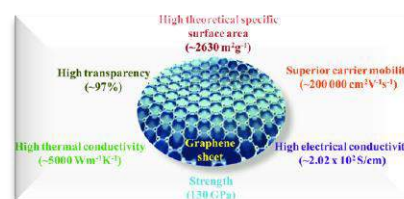
The structure of an EGS will be composed of the solar panels, handlers and the transmitters. The solar-panels. The handlers will connect the solar panels to the transmitters. These handlers will help to stable the solar panels accurate to their positions and also turn them according to the distance and direction of the EGS from the sun.

The type of an energy transmitter (laser or microwave) will depend upon the distance of the EGS from a sudarsan body. If the distance is less than more energy could be transmitted in microwaves whereas if the distance between the sudarsan bodies to EGS is more and the size of the receiver is small then focused beams of laser type energy transmission will be used here.

**A thermoelectric generator:** - Radioisotope thermoelectric generator (RTG, RITEG) is an electrical generator that uses an array of thermocouples to convert the heat released by the decay of a suitable radioactive material into electricity by the Seebeck effect. This generator has no moving parts. RTGs have been used as power sources in satellites, space probes, and uncrewed remote facilities such as a series of lighthouses built by the former Soviet Union inside the Arctic Circle. RTGs are usually the most desirable power source for unmaintained situations that need a few hundred watts (or less) of power for durations too long for fuel cells, batteries, or generators to provide economically, and in places where solar cells are not practical. Safe use of RTGs requires containment of the radioisotopes long after the productive life of the unit. The expense of RTGs tends to limit their use to niche applications in extreme situations. (TEG), also called a Seebeck generator. This will also help in temperature reducing or enhancing thermal control.



**Graphene uses in industrial energy generation :-** The heavy industries of sudarsan present on the surface of a planet or moon will require a large amount of energy to extract minerals or separate any particular element from its compound state. To satisfy the need of this huge energy we hereby bring the idea of “energy absorption.” A recent research has discovered a special carbon structure which is hexagonal bond of carbon atoms, making it very strong & conductive which allows conduction). It is nothing but graphene. Graphene is also called as “strange matter” which supports its meaning for being the largest heat conducting substance. It has one more quality of not melting even in high temperature like that of copper. It is about 100 times stronger than the strongest steel alloy, & one of the best heat / energy conductor. One more peculiar quality of graphene is that it conducts complete energy from the source of energy which means:-



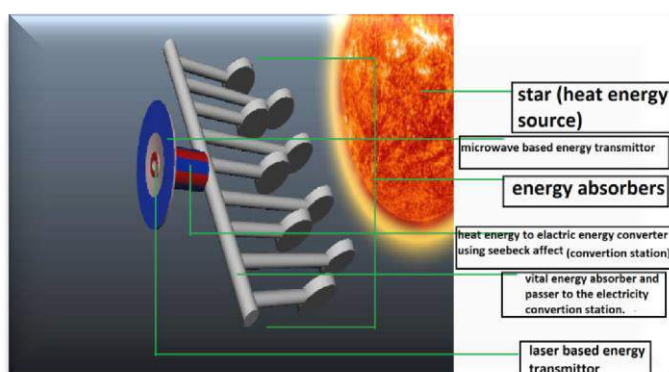
If a small rod of graphene is taken with two ends namely points A and B, where point “B” is put in a candle flame then the following observation can be seen :-

Only the two ending points (i.e. point A and point B) will possess heat energy and the rest of the body will be cool. This following experiment approves that graphene allows complete energy

conduction from its source of energy to its end where the energy is to be utilised. In our planet based industries we will be using a long cylinder made up of graphene touching the mantle layer of the planet to the energy receivers, present in the industry. This will allow the infinite amount of energy for performing industrial activities. The mantle layers possess infinite heat energy which could be converted into electrical energy & be used by the industries for elemental separation, specific mineral abstraction, and making of alloys. This graphene energy absorbing process will help to satisfy the need of energy for functioning & there will be no requirement of co-relationship with the energy generation system (EGS) which are free existing bodies near the stars. (To generate electrical energy from solar energy through the process of photovoltaics

## The graphene based energy generation stations (GEGS):

The light, radiations etc. of the solar energy can be converted into electrical energy through the process of photovoltaic. But with the help of this GEGS we will be converting heat energy into electrical energy. The structure consists of the energy absorber, a radio scope thermoelectricity generator (RTG, RITEG) PART AND ENERGY TRANSMISSION SECTION. The heat absorbers are made up of graphene. As the conductivity of graphene is the highest compared to anything and because of its complete conductivity property we selected this hexagonal bonded carbon structure which does not melt like copper as its melting point is highest. The heat energy absorbed by it will be introduced to the radio scope thermoelectricity part. The radio scope thermoelectricity will convert this heat energy in to electrical energy and pass the energy to the energy transmitter. Then the transmitter will convert the electrical energy into microwaves or laser beams and transmit the energy on the energy receiving station of any Sudarsan body.

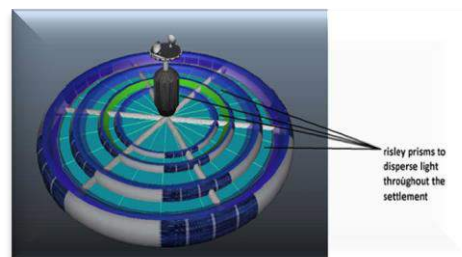


## LIGHT IN SUDARSAN

Light is very important for the human as well as plant survival. In SUDARSAN we will be using different techniques for bringing light in the settlement.

**1) Making a tilt in the axis of rotation:** The  $0^\circ$  on the axis of the rotation means the complete sunlight will fall on the outermost layer of sudarsan which will benefit in energy generation but the light will not fall inside the settlement. As one ring is not placed above the other but adjacent to one another therefore we do not have a fear that light will fall only in one single ring, if kept tilted. (Note that one of the reasons of designing the settlement like this is light.)

**2) Using Risley prisms:** Risley prisms are two very interesting thin prisms which are placed one above the other (and some space between them). Whenever light passes through these prisms they spread the light rays in a wide

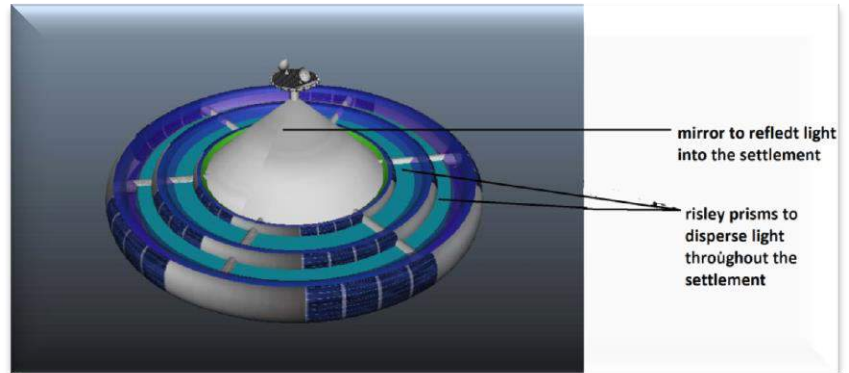




angle. Thus in some sudarsan<sub>(s)</sub> which are quite away from a star they may adopt these Risley prisms on the torus spaces.

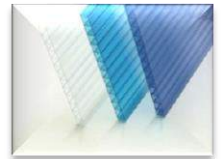
### 3) Using inclined plain mirrors on the torus space:

we all know that plain mirrors reflect light rays right to the angle suspended by the incident ray. So if we put an inclined plain mirror on the torus spaces then the incident light rays will reflect and fall in the interior settlement.

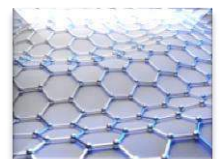


4) Using HYBRID glasses: the hybrid glasses are nothing but a thick layer of complex structure made up of Lexan polycarbonate sheets, transparent graphene layer and a layer of LED of high efficiency.

Solid Lexan sheets allow about 85%-92% light transmission (it is transparent) making it perfect for skylight, canopy and other application. These sheets made from UV-stabilized Lexan resin, thus ensures that the light transmitted through this can be maintained over several years even under continuous direct sunlight. Lexan solid sheets offer an extremely high impact resistance making it absolutely virtually unbreakable. They are rated at an impact range energy of >200Nm to >180Nm and qualify for the highest performance rating for security glazing as per various International standards.



Graphene: graphene is a very strong carbon bond which is even 100 to 120 times stronger than that of steel. It is a super allotrope of carbon in the form of a very single layer of atoms in a two-dimensional hexagonal lattice which makes it the most conductive (absorbent) as well as one of the strongest matter discovered till date.

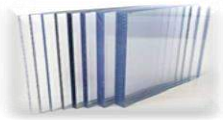


LED lights (of highest efficiency like NS22): in some sudarsan settlements (those which are very away from a light source or a star) we will keep a long layer of continuous LED, with a simple structure of resembling a hexagon (note the space between the hexagon) so till the time the sudarsan is away from the star it will use the LED<sub>(s)</sub> and when ( may ) the sudarsan will come closer to the light source then the LED<sub>(s)</sub> will be turn “off” and let the sunlight pass through it.



The structure of the layers will be like:

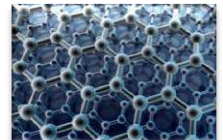
a) The first layer will be of Solid Lexan sheets which will be about 20% of the wideness of the atmosphere protector. (To give strength)



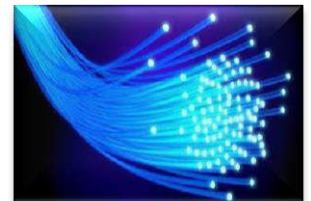
b) The second layer will be of the complex structure of LED which will cover 5% of the wideness of the atmospheric protector



c) The third layer will be of graphene. It will be about 5% of the wideness of the atmospheric protector. And;

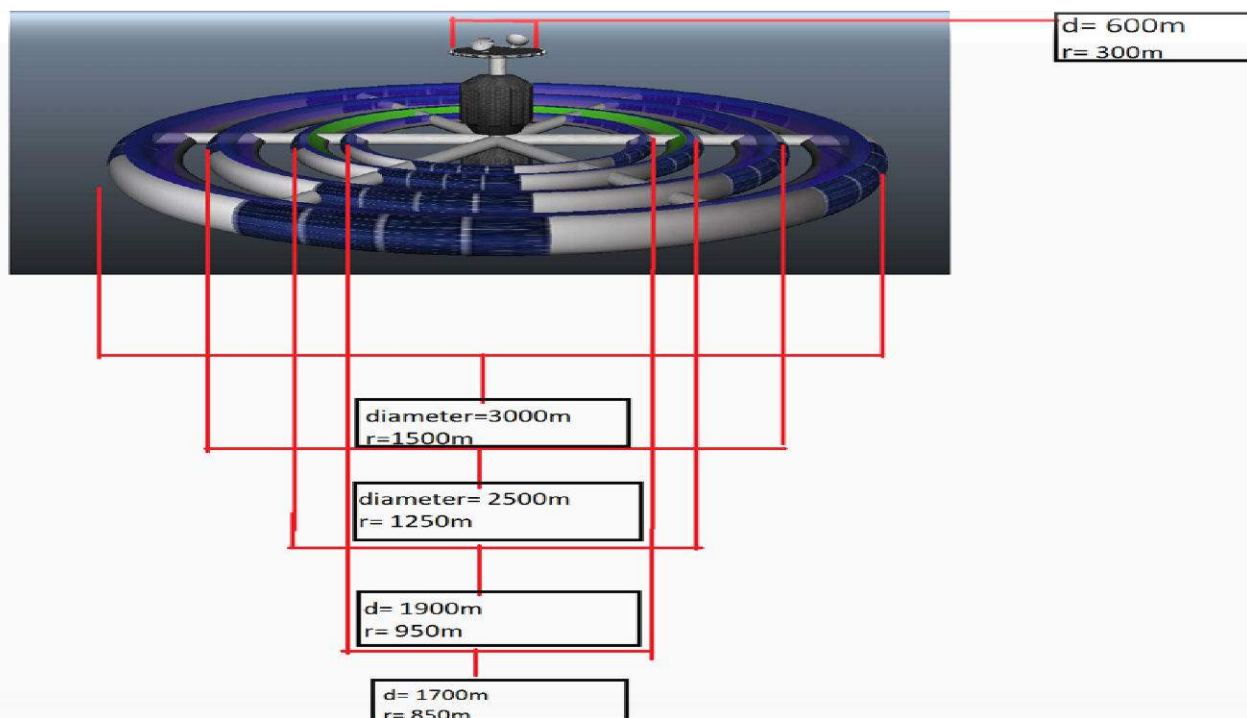


d) The fourth and fifth layer will be of glass and fibre. (To give mechanical strength and enabling successive light transmission and wide spreading of light.



5) Using fibre optics: fibre optics is well known for transporting light from its starting bay to the end of the length. This fibre optics layer will be used only in recreational, gaming, amusing parks, and artificial scenarios (all in the third ring).

## PSEUDO GRAVITY





Gravity can be generated by rotating a particular circular object. It works on the principle of centripetal and centrifugal force. As the circular object rotates it experiences the centripetal force to its centre and centrifugal force outward from the centre. As these two forces are equal in the magnitude these two forces will balance each other and it accelerates the object away from the centre. So the object will force down to the boundary of the circular object. These phenomena will be used in the sudarsan to generate gravity.

Totally, there will be four rings in the Sudarsan and each ring will rotate at different velocity. To generate the require gravity in rings of the Sudarsan. We have taken the different velocity of different rings because all rings will rotate by the same motor.

The velocity and the acceleration of the all rings are as follows:-

**RING 4** The required acceleration in the ring four is  $10\text{m/s}^2$

$$\text{Acceleration} = v^2/r.$$

$$\text{Acceleration} = 10\text{m/s}^2$$

$$\text{Gravitation} = 10\text{m/s}^2 \quad (\text{ACCELERATION} = \text{GRAVITY})$$

$$\text{Velocity} = \sqrt{\text{radius} \times \text{acceleration}}$$

$$\text{Velocity} = \sqrt{1500 \times 10}$$

$$V = 122.4487139 \text{ m/s}$$

$$\text{Total time taken} = \text{circumference} / \text{velocity}$$

$$\text{Total time taken} = 9428.57142856 / 122.474487139$$

$$= 76.9839633446 \text{ seconds.}$$

**RING 3** Radius = 1250m

$$\text{Velocity} = \text{circumference} / \text{time taken}$$

$$\text{Velocity} = 7857.14285713\text{m} / 76.9839633446\text{s}$$

$$= 102.062072615\text{m/s}$$

$$\text{Acceleration} = 102.062072615^2 / 1250$$

$$= 8.33333333192\text{m/s}^2.$$

**RING 2** Radius = 950m.

$$\text{Circumference} = 5971.42857142\text{m}$$

$$\text{Velocity} = 5971.42857142\text{m} / 76.9839633446\text{s}$$

$$= 77.567175188\text{m/s}$$

$$\text{Acceleration} = 77.567175188^2 / 950\text{M}$$

$$= 6.3333333333\text{m/s}^2$$

**RING 1** Radius = **830m**

$$\text{Circumference} = 5531.42857142\text{m}$$

$$\text{Velocity} = 5217.142857142857\text{m} / 76.9839633446\text{s}$$

$$= 67.76921621701373\text{m/s}$$

$$\text{Acceleration} = 71.8516991215^2 / 880\text{m}$$

$$= 5.5333333333537\text{m/s}^2.$$

## COMPOSITION OF GASES

The IDEAL GAS LAW Gas composition: - The composition refers to the different kinds of the gases present in the atmosphere of the four rings of the sudarsan. Some important gases will present in the atmosphere of the rings of sudarsan are Oxygen 21%, nitrogen 77%, Argon 1%, carbon dioxide gases 1%, in the 1 atmospheric pressure and in average temperature 21°C or 294k.

### Composition of gases in the ring4

The volume of the Semi torus =  $(\pi r^2) (2\pi R)/2$

Where R is major radius and r is minor radius.

Volume of the ring4 =  $(22/7 \times 200^2) (2 \times 22/7 \times 1500)/2$   
 $= 592653061.22 \text{ m}^3 = 592653061220 \text{ litre.}$

According to the Ideal gas law

$PV = nRT$  (Where p= Pressure; V= volume; n= number of mole; R= Ideal gas constant 8.314; T= temperature in kelvin)

Their for the total moles of the gases in the fourth ring is equal to the

$n = PV/RT$

$= 1 \times 592653061220 \text{ L} / 8.314 \times 294 \text{ K}$

$= 20957421217065.19 \text{ moles.}$

Moles of Oxygen = 21% of 20957421217065.19 moles.

$= 4401058455583.69 \text{ moles.}$

Moles of Nitrogen = 77% of 20957421217065.19 moles.

$= 16137214337140.2 \text{ moles.}$

Moles of Argon = 1% of 20957421217065.19 moles.

$= 209574212170.6519 \text{ moles.}$

Moles of carbon dioxide gases = 1% of 20957421217065.19 moles.

$= 209574212170.6519 \text{ moles.}$

The mass of the gases present in the ring4 are as follows:-

Molar Mass of Oxygen ( $\text{O}_2$ ) = 31.998g

So the mass of the  $\text{O}_2$  in the ring4 =  $31.998 \text{ g} \times 4401058455583.69 \text{ moles.}$

$= 140825068461766.9 \text{ g.}$

Molar mass of the nitrogen ( $\text{N}_2$ ) = 28.014g.

So the mass of the  $\text{N}_2$  in the ring4 =  $28.014 \text{ g} \times 16137214337140.2 \text{ moles.}$

$= 452067922440645.6 \text{ g.}$

Molar mass of the carbon dioxide ( $\text{CO}_2$ ) = 44.01g

So the mass of the  $\text{CO}_2$  in the ring4 =  $44.01 \text{ g} \times 209574212170.6519 \text{ moles.}$

$= 9223361077630.39 \text{ g.}$

Molar mass of the Argon (Ar) = 39.948g

So the mass of (Ar) present in the ring4 =  $39.948 \text{ g} \times 209574212170.6519 \text{ moles.}$

$= 8372070627793.202 \text{ g.}$



## Composition of gases in the Ring3

Volume of the ring3 =  $(22/7 \times 200^2 \text{m}) (2 \times 22/7 \times 1250 \text{m}) / 2$

=  $493877551.0204082 \text{m}^3$  or  $493877551020.4082$  litre.

Their for the total moles of the gases in the third ring is equal to the

$n = PV/RT$

$n = 1 \text{atm} \times 493877551020.4082 / (8.314 \times 294 \text{k})$

=  $17472924187725.63$  moles of gases in the third ring.

Moles of  $\text{O}_2$  in ring3 = 21% of  $17472924187725.63$  moles.

=  $3669314079422.382$  moles.

Moles of the Nitrogen ( $\text{N}_2$ ) = 77% of  $17472924187725.63$  moles.

=  $13454151624548.74$  moles.

Moles of  $\text{CO}_2$  = 1% of  $17472924187725.63$  moles.

=  $174729241877.2563$  moles.

Moles of Argon (Ar) = 1% of  $17472924187725.63$  moles.

=  $174729241877.2563$  moles.

The mass of the gases present in the ring3 are as follows:-

Mass of the ( $\text{O}_2$ ) in the Ring3 =  $31.998 \times 3669314079422.382$  moles.

=  $117410711913357.4 \text{g}$ .

Mass of the Nitrogen in the ring3 =  $28.014 \text{g} \times 13454151624548.74$  moles.

=  $376904603610108.4$

Mass of  $\text{CO}_2$  in the ring3 =  $44.01 \text{g} \times 174729241877.2563$  moles.

=  $7689833935018.05 \text{g}$ .

Mass of (Ar) in the ring3 =  $39.948 \text{g} \times 174729241877.2563$  moles.

=  $6980083754512.635 \text{g}$ .

## Composition of gases in ring2

Volume of the ring3 =  $(22/7 \times 70^2 \text{m}) (2 \times 22/7 \times 950 \text{m}) / 2$

=  $45980000 \text{m}^3$  or  $45980000000$  litre

Their for the total moles of the gases in the second ring is equal to the

$n = PV/RT$

$n = 1 \text{atm} \times 45980000000 \text{ litre} / (8.314 \times 294 \text{k})$

=  $1625946596102.959$  moles.

Moles of  $\text{O}_2$  =  $21/100 \times 1625946596102.959$  moles.

=  $341448785181.6214$  moles.

Moles of Nitrogen =  $77\% \times 1625946596102.959$  moles.

=  $1251978878999.278$  moles.

Moles of  $\text{CO}_2$  =  $1\%$  of  $1625946596102.959$  moles

=  $16259465961.02959$  moles

Moles of Ar =  $1\%$  of  $1625946596102.959$  moles

=  $16259465961.02959$  moles.

The mass of the gases present in the ring2 are as follows:-

Mass of the ( $\text{O}_2$ ) in the Ring2 =  $31.998 \times 341448785181.6214$  moles.

=  $10925678228241.52 \text{g}$ .

Mass of the Nitrogen in the ring2=  $28.014\text{g} \times 1251978878999.278$  moles.  
 = 35072936316285.77g  
 Mass of CO<sub>2</sub> in the ring2=  $44.01\text{g} \times 16259465961.02959$  moles.  
 = 715579096944.9123g.  
 Mass of (Ar) in the ring2=  $39.948\text{g} \times 16259465961.02959$  moles.  
 = 649533146211.2101g.

## Composition of gases in ring1

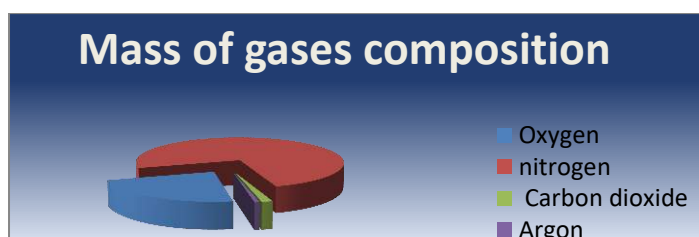
Volume of the ring3 =  $(22/7 \times 50^2\text{m}) (2 \times 22/7 \times 830\text{m})/2$   
 = 20495918.36734694m<sup>3</sup> or 20495918367.34694 litre  
 Their for the total moles of the gases in the second ring is equal to the  
 $n = PV/RT$   
 $n = 1\text{atm} \times 20495918367.34694 \text{ litre} / (8.314 \times 294\text{k})$   
 = 724777483762.3286 moles.  
 Moles of O<sub>2</sub> =  $21/100 \times 724777483762.3286$  moles.  
 = 152203271590.089 moles.  
 Moles of Nitrogen =  $77\% \times 724777483762.3286$  moles.  
 = 558078662496.993 moles.  
 Moles of CO<sub>2</sub> =  $1\% \text{ of } 724777483762.3286$  moles  
 = 72477748.37623286 moles.  
 Moles of Ar =  $1\% \text{ of } 724777483762.3286$  moles  
 = 72477748.37623286 moles.  
 The mass of the gases present in the ring1 are as follows:-  
 Mass of the (O<sub>2</sub>) in the Ring1 =  $31.998 \times 152203271590.089$  moles.  
 = 4870200284339.668g.  
 Mass of the Nitrogen in the ring1=  $28.014\text{g} \times 558078662496.993$  moles.  
 = 15634015651190.76g  
 Mass of CO<sub>2</sub> in the ring2=  $44.01\text{g} \times 72477748.37623286$  moles.  
 = 3189745706.038008g.  
 Mass of (Ar) in the ring2=  $39.948\text{g} \times 72477748.37623286$  moles.  
 = 2895341092.13375g.

**The total requirement of the oxygen (O<sub>2</sub>) = 269164353944458g or 269164353944.458 kg.**

**The total requirement of the Nitrogen (N<sub>2</sub>) = 879679478018230.5g or 879679478018.2305 kg.**

**The total requirement of the Carbon dioxide (CO<sub>2</sub>) = 17631963855299.39g or 17631963855.29939kg.**

**The total requirement of the Argon (Ar) = 8372070627793.202g or 8372070627.793202 kg.**





We will extract these gases from the minerals of the asteroid and also from the Earth, Moon, and Mars. In the extraction the SSF will very important role because all the minerals can be converted into the finish product in SSF only.

Different minerals involve in the construction of the Sudarsan are as follows:-Silicon is the very important minerals from which the solar penal use in the sudarsan will prepare. It will also use in the construction of the other glasses which will use in the Sudarsan. Silicon will use in the preparation of the computer chip and other devices which will use in the robots.

Iron it will use in the different stage of the construction of the sudarsan. It will mainly use to make the skeleton of the sudarsan it will also use in the industry of the sudarsan to manufacture the different kinds of vehicle and other important stuffs which are very essential. Iron will also use in the construction of the body of the robots. They will further help in the construction of the Sudarsan.

Area of all the four rings of sudarsan:-

Area of all four ring of the sudarsan = circumference× height

Ring1:- 5531.42857142m× 100m

= 553142.857142m<sup>2</sup>

Ring2:- 5971.42857142m× 140m

= 835999.999998m<sup>2</sup>

Ring3:- 7857.14285713m× 400M

= 3142857.142852m<sup>2</sup>

Ring4:- 9428.57142856m× 400m

= 3771428.5714224m<sup>2</sup>

## MINERAL EXTRACTION

We will need different types of material to construct our settlement “sudarsan”. We are dependent in some other bases from which we can extract the needed material. The sources from which we will extract the needed materials are: - (i) Martian Base, (ii) Lunar Base, (iii) Asteroids.

The material required for different sources are:-

1. Martian Base: - The different materials we can get from the planet mars (Martian base) are – red soil (ferrous oxide), its igneous rocks contains sulphur, oxygen along with iron, carbon dioxide, potassium, aluminium,



manganese, calcium. The under layer of the planet has about 90% of iron or iron compounds, 7% of nickel, some iron iron-nickel, and other elements and compounds. The two polar caps of the planet are filled with ice composing about 90% of the planet's water. The Martian atmosphere is composed of Carbon dioxide: 95.32 per cent. Nitrogen: 2.7 per cent. Argon: 1.6 per cent. Oxygen: 0.13 per cent.

2. Lunar Base: - The different materials we can get from the planet moon (lunar base) are: Oxygen, water, titanium, sodium oxide, helium, nitrogen, phosphorous, pent oxide, potassium oxide. Moon contains about 43% of oxygen in its surface. Near the two poles during the 14 nights the temperature falls down to about -232 C (or -387 Fahrenheit) or even more, due to this the oxygen condenses or even solidifies to form liquid or solid oxygen. This lunar base mineral extraction will help us to meet the oxygen.



3. Asteroid Mining:- Asteroids are highly rich in minerals (or) elements so we will be mining asteroid & extract the valuable materials which can be used in our settlement "sudarsan". In different asteroid there are different types of minerals & the types of mineral are as follows -



Gold, silver, platinum, rhodium, tungsten, iron, nickel. Gold, silver, platinum, rhodium, tungsten, Iron, nickel.

## MANAGEMENT OF WATER

*We know that water is a very precious thing for us. But in our settlement (sudarsan) there will be limited water. Some modern will be used to save water.*

### **THE MODERN WAYS TO RECYCLE AND SAVE WATER WILL BE:-**

**SENSATE FAUCET KOHLER:** - It is a type of voice controlled tap that will be used in every homes and restaurants, hotels etc. It is also sensor able that can sense your hand and it will start functioning. It will fill the water according to the user instructions. For ex: - If the user is commanding to fill water in a bucket, it will fill the bucket and stop functioning. Many times people will on taps and left it for filling any bucket or glass and the water will over flow, but with this device a lot of water will be saved.

**SHOWER METER:** - It will be a type of gadget that can help to save water. This device will be set up in bathrooms. It will have to connect it with the shower and it will star when water will flow inside it. It will not require any energy to start. The will have to set the liter of water to bath. Then when it will start it will show the use of water. It will also show the temperature of the



water and it will stop functioning when it will reach to the maximum liter (which the user has set up) and it will stop functioning. In this method a lot of water can be conserved.

SHOWER TAPS: - It's a type of tap where the water will come by spraying. This is a new modern technology that will be used in everywhere. Whenever the user will use it will spray the water in the hands. It will be a very good technique to save water. From normal taps water will come by flowing but when the shower tap will work it will spray the water and will save a lot.

PUMP BIN: - It will be a type of device where the waste water can be collected in it. When the water has split on the floor or on the ground and the device will be start it, will suck all the water in the water in the ground or in the floor and it will keep in the container present in it. This water can be used in gardening. Or the water will be released into water purifier system.

WATER BOT: - It will be a kind of mini robot device that will be installed everywhere in sudarsan. Whenever it will see that water is wasting then it will automatically go and stop the device (from where the water is wasting). It will be a very useful thing in the settlement. This device will be very helpful in conserving of water.

## **BIO WASTE MANAGEMENT:**

There are basically three types of waste generation, namely solid, liquid and gas. These are actually the unneeded products which come as a result of domestic, industrial and recreational practices. According to the Chinese talk "nothing in the world has no value, anything is not a waste" we will follow the same. In our settlement and sudarsan bodies the management of waste and its proper disposal will be strictly followed. Reduce-reuse-recycle procedure will be strictly followed by the people without much efforts.

firstly The domestic waste includes human feaces, used waters in bathrooms, toilets, and washrooms . So the main concerns of the wastes generates from the kitchen and toilets . The human feaces from water will be separated through the process centrifugation . The process of centrifugation helps in the separation of substances of different densities . The matter which has more density (here human excreta)will move to the end of the apparatus and the matter with low density (here water) will come below the higher density substance . In this process the solid bio-waste released by human gets separated and now the solid waste can be transferred to solid refinery and waters to water refinery respectively .

The biosolid waste refineries : The function of these refineries is to treat the bio-waste (organic waste or carbon rich waste) . These refineries will have a special chamber where the wastes would be collected and let it to be decomposed by the purple bacteria . A new research has approved that a special bacterium namely the 'purple bacteria' converts the human excreta and even few food waste (vegetable peels etc) into hydrogen and unique manure which is highly rich in humus and plant required nutrients (like nitrogen , carbon , calcium etc) . The hydrogen released from here could be utilised to make several chemicals , fuels , water etc . And the anromously fertile manure could be used to grow organic foods .

The water refinery : The water will be separated by the impurities and will be made pure through the process of distillation . When waste water (seawage , water) is imported to the refinery , the water will be boiled in extreme temperatures and would be converted into steams

(gaseous state) and then vapours will be passing through a cool chamber and condense to form water (distilled water) . This distilled water will be added with some minerals , vitamins and salts and then this water is ready to be supplied to the houses of our settlement . Then this water will be used

by the people in our settlement . This can be used in different purposes like washing , drinking etc . Then the used water will be again refined in the refineries . This process will go on .

## THE JUNK CATCHER: - SPYJU

There are a lot of junks as well as debris in the space. So, there will be also different kinds of materials present in the debris. This debris will be including Nonfunctional space craft, abandoned launch vehicle stages, etc. These space junks size will vary from smaller than 1cm (0.39) are estimated over 120 million and there are over approximately 900,000 of junks from (1 to 10cm in size). There are also over 34,000 of space junks in 10cm or more than that or large in size are present in the space. So, these junks or debris will be caught by the junk catcher and will be utilized in many different ways.

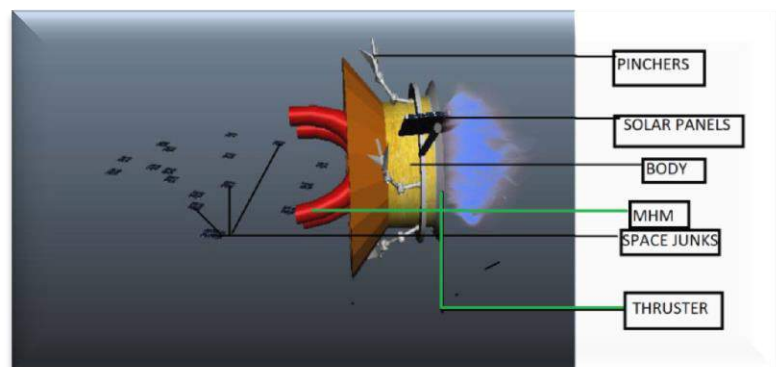
This junk catcher will have many parts:-

**PINCHERS:** - These will be finger like structures called as claw. It will help in catching of large size of junks present in the space. It will be so strong that it will not break easily. There will be four claws to trap big size junks. It will be made very strong that it will not break while catching space junks. It will be connected to the Pincher arms. It will also catch non-metallic small size junks

**SOLAR PANELS:** - This will be the part to provide energy to the machines to run and work. There will be two solar panels to provide energy.

### **MEGA HYBRID MAGNET**

**(MHM):**- This will be a new type of magnet that will have more strength to catch metal objects, etc. It will catch small space debris (1cm (0.39). It will also catch more than 10cm of space debris. It will have more force of attraction that it will catch the space debris from some large distance too. It will be attached in the front part of spyju.



**PINCHERS ARMS:** - It will be attached to the pinchers. It will help the pinchers to catch the space debris. It will help the pinchers to move side by side that it can easily catch the space junks. It will be made of a very strong material that it will not break easily. It will also be connected to the main body of the junk catcher "SPYJU".

**Thrusters:** - It will help spyju to reach from one place to another to catch junks. It will be attached to the back part of the junk catcher.



## FUNCTION OF SPYJU:-

Spyju is the junk catcher of sudarsan. It will catch the junks/debris present in space. The junk catcher will have an automatic sensor system that whenever it sees any junk/debris it will go near it and will catch. It will catch large junks with the help of pinchers, non-metallic junks too and small junks with the help of MHM. Spyju will get energy by the solar panels. It will move from one place to another for catching junks through suns radiation. It will also have thrusters in its back to travel. In any case, if one of the systems is not working then the other one will be there for emergency. Spyju will be made of the world's strongest material (that is) steel alloy. Spyju will catch junks and will bring it to SSF (Sudarsan space factory). Then the space junks/debris will be utilized in many ways.

## JUNK UTILIZATION

There are Millions of junks in the space from small to large. So, the junk catcher "spyju" will bring the space junks to the SSF (Sudarsan space factory). These junks will be utilized By SSF to make or build many products or vehicles etc. The space junks are including derelict satellites, spent rocket stages as well as the fragments from their disintegration, erosion and collisions. Also broken space crafts, space shuttles etc. Some of the materials that can be getting from space are:-

Spent rocket stages: - These bodies are mostly made of aluminum or titanium. These materials are very strong and light that can be reuse able. The future rockets are also looking for using carbon composite structures. So these materials will be getting from the useless rockets in the space or stages of rockets.

Destroyed space shuttles: - These destroyed shuttles can provide silica materials and also aluminum. These waste materials also can be utilized.

Broken/destroyed space craft's:- It will provide aluminum and aluminum composite materials. It is also composed of titanium alloys. These materials are also reusable to SSF.

Derelict satellites: - It is made up of titanium and aluminum. They also contain composites and alloys, such as nickel-cadmium or aluminum-beryllium.



*These all materials can be utilized in many ways by SSF. **ALUMINUM** is a very strong and light weight material that can be used to make various products such as vehicles like rockets and houses requirements like can frames kitchen utensils etc. So aluminum can be used to make rockets and products like cans kitchen utensils, food cans etc. **TITANIUM** will be used in the manufacture of such things like shoes, jewelry, computers, sporting equipment, watches etc. **SILICA** will be used in polishing glass; in the manufacture of glass, ceramics, silicon carbide, ferrosilicon, and silicones etc. **TITANIUM ALLOYS** will be used in making of heavily-loaded airframe sections, undercarriage parts, skins to high, jet engines, and many other*

aircraft components requiring high strength etc. NICKEL-CADMIUM will be used in making of batteries. ALUMINUM-BERYLLIUM is a type of material that will be used in aerospace and satellite applications. These all the materials that can be get from space junks and can be utilized in making all of these products.

So these/many materials will be getting from the space junks and can be utilized to make various products; as mentioned above. Many of the products like glass, Ceramics, Kitchen utensils etc. will be manufacture in SSF and will be transferred to the space settlement “Sudarsan” and will be used in the daily life of humans. And products like jet engines, rockets, space shuttles etc. will be manufacture in the SSF and will be kept there. So, as the space junks will be utilized in these manners then all the space junks will be slowly reducing. As the junks will be getting utilized it will be benefit for the humans as well as while reducing the space junks there will not be much risk of collision of Space shuttles/rockets with the destroyed/damaged satellites, rockets, space crafts , space shuttles etc.

## AGRICULTURE

### Food production

Sudarsan will be a settlement where a large population will be living. Each individual requires a minimum of three doses of food per day. If one is to be satisfied with his food requirement, we need to produce more and more food grains and animal products. In Sudarsan the food production will be done on the basis of two divisions (Following processes are mentioned other than traditional way of farming):

- a) Farming.
- b) Artificial nutrients production.

#### a) Farming

The farming will be based in accordance of cultivating (1) plants and (2) animals.

#### In case of crops

The crops will be grown under modern techniques and methods. Suitable practices like aeroponics, hydro-phonics will be done to decrease the area under cultivation. Classical music with low amplitude will be played inside the cultivation area to make the crops grow faster. Genetically modified crops would be used to increase the efficiency. Crop grain protection will be done by giving more safety to them.

Improvement in crop yields will include: crop variety improvement, crop production management and crop protection management.

#### Crop variety improvement:

As per to meet the food needs of thousands of people in Sudarsan we will be increasing the productivity of the crop which will increase the production per acre. Higher yield, improved quality of produce, biotic and abiotic resistance from parasites, change in maturity duration,

desirable agronomic characteristics, wider and special adaptability to a new climate etc. of the crop will be increased. Genetically modified and hybrid crops will be used to fulfil the above requirement of crop variety development of the crops. Due to these the crop will produce more specific required food, take less minerals and nutrients in unnecessary things like excessive leaf, branching, etc. in grain- crops, long lasting duration and more branching of fodder crops. Produce large, nutritious, tasty fruits, and vegetables. Grow faster to produce more in less time. Grow within a required height and area. The varietal improvement will do through the addition of an alien gene into the cell of the required offspring. This gene will be carried through a special bacteria will introduce this gene into plant cell. The second process of varietal improvement is with the help of hybridisation. Two plants of same family with different qualities will be taken (their flowers will not be cut). Here the pollen of one flower will be dust onto the stigma of another flower. And thus the embryo formed will have desired characteristic and qualities of both the parents.

### **Crop production management:**

The seed used in in the cultivation will be genetically modified ones. The production of the crops will be done in special house like areas which were to be called CHOUSES (crop houses). The structure of one CHOUSE will contain:

#### **a) Classical music system :**

The seed used in in the cultivation will be genetically modified ones. The production of the crops will be done in special house like areas which were to be called CHOUSES (crop houses). The CHOUSE will contain (other than normal greenhouse type plantations):

#### **b) Classical music system :**

In 1962, DR.T. C. Singh, head of the Botany Department at India's Annamalia University, experimented with the effect of musical sounds on the growth rate of plants. He found that balsam plants grew at a rate that accelerated by 20% in height and 72% in biomass when exposed to music. Sound also influences the opening and closing of stomata, the very tiny pores that act like primitive lungs on plants. Music helps a stoma stay open for longer, thus taking in more air and growing faster due to this the plant also intakes more and more nutrients, moisture and functions well.

Some sound frequencies activate genes that speed up plant growth. Some further researches on the type of music for plants and sound frequency concluded to the following results:

Classical music made plants grow better, bushier, and greener, with healthier stems. Jazz music also accelerated growth and made plants fuller. The classical and jazz type music vibrations are claimed to be the best typical music plant growth whereas the experiment of Harstein, and other botanical researchers and scientists have approved that rock music may cause harm in plant growth and production too (note that all the experiments with the rock music were not a failure some of the plants even grew faster in presence of rock music).

The frequency of 20,000 Hz gives the highest growth, but the best sound is of 5,000 Hz. The sound at 400-800 Hz at 100 dB an hour every day is best for seed germination. When kept in a



pyramid for some time every day, the seed germination, flowers, fruits, and overall growth increased up to 50%.

So with respect of the above researches we planned to put a music system in the CHOUSES and play the specific amplitude and frequencies and energy densities of their different stages of their growth in different plants:

- The period of germination (common for all seeds of crops): 100 dB and 1,000 Hz
- For the boost growth of paddy rice crops: 400 Hz and 106 dB
- *Chrysanthemum* (flowering plant): 100 dB and 1000Hz
- *Oryza sativa* : 70 Hz
- *Arabidopsis thaliana*: 70 Hz in presence of 0.42 mm
- Corn (when seeds are dip into an aqueous solution): 15-30 kHz and energy intensity of 1-10 W/cm<sup>2</sup>
- Jack Pine (fodder for some animals and timber for furniture): intensity in the range of 0.5-1.0 W/cm<sup>2</sup>

Audible sound also increased the large colony formation of *Escherichia coli* under normal growth conditions. The response of bacterial cells to audible sound was stimulated due to the involvement of several potential mechanisms. The significant increase in the microbe population could help in more mineral fixation, and strengthen symbiotic relationship (between a legume and bacteria)

Sound waves also greatly affected the cell cycle in *Chrysanthemum*. Specifically, the number of cells were increased in the S phase due to sound waves (1,000 Hz and 100 dB), indicating that sound waves accelerated the growth of chrysanthemum. Ultrasound effectively increased the conversion frequency of *Dendrobium officinale* protocorm like bodies to shoot production in micro propagation when administered at 28,000 Hz and 300 W for 5 min. In addition, ultrasound was reported to cause the transient formation of cellulose in cotton seeds. Plant growth and development reflect the increase of different growth parameters including plant height, branching, flowering and fruiting, and fresh and dry weight.

High frequency and intensity of sound can cause severe cell damage, but at the perfect point of frequency and strength it can promote the growth of plant cells. During the musical research it was found that sound at specific frequencies and intensities successfully increased the cellular growth of different plants such as *Dendranthema morifolium* and *Oryza sativa*. Specifically, sound at 1,000 Hz and 100 dB increased the ATP content of *Actinidia chinensis* callus, which was favourable for vigorous growth and plant development.

Moreover, 400 Hz sound waves, as well as sound produced by cuckoo, cricket (these insects produce almost the same frequency ranges i.e. 400 Hz or less than 900 to 1000 Hz and some even below 10,000Hz) and mixed insect songs (natural support provided for plant's growth) reportedly show a positive effect on the height of cowpeas during the seedling stage. PAFT is the treatment of plants with a specific sound frequency. This treatment was found to increase the yield and quality, and strengthen disease-resistance in pepper, cucumber, and tomato.

Moreover, the net photosynthetic rate, maximum fluorescence, photochemical efficiency of photosystem II and non-photochemical quenching were also markedly increased by sound in strawberry leaves.

Plasma membrane  $H^+$ -ATPase is a type of glycoprotein across membranes, which plays an important role in the growth and development of plants. Certain intensity (100 dB) and frequency (1,000 Hz) sound waves increased the activities of plasma membrane  $H^+$ -ATPase, which regulated physiological and biochemical processes such as growth, development, turgor pressure and maintenance of plasma pH.

Mechanic stimulation induced expression of the touch (*TCH*) genes, and frequency specific sound led to significant up regulation of the expression of genes encoding a putative fructose 1,6-bisphosphate aldolase and ribulose 1, 5-bisphosphate carboxylase small subunit in rice plants. The 1,506-bp *ald* promoter was also found to be a sound-responsive promoter, indicating that specific frequencies of sound can regulate the expression of any gene fused with the *ald* promoter. The researchers specified that gene expression was up-regulated at 250 Hz, but down regulated at 50 Hz. Moreover, sound wave stimulation accelerated the synthesis and total content of RNA, but had no influence on DNA content. Several biotic stresses down-regulated the expression of genes involved in photosynthesis. Researchers concluded that the down-regulation of photosynthesis related genes and up-regulation of genes coding for the synthesis of jasmonic and salicylic acid were part of a defence response to various stress.

Hence by seeing above we can say that music can be a fertilizer for the plant's growth. The music systems will be alike the central Air conditioner present in the edge of the ceiling mark. These systems will produce desirable amplitudes and frequencies for the particular crop at its specific age and growth period.

### C) Heat and moisture

Terrestrial plants succeeded in adapting the difference in water chemical potentials between the two phases as an additional source of energy for their needs. The conditions of energy interaction of the plant with its surroundings are extremely variable, and they depend upon the combination of many parameters, and each may vary within wide limits. The main outer parameters are solar irradiation, the air temperature, and air humidity. The wind velocity is also a significant factor. In its turn, the plant can actively respond to the variations in external conditions by changing the permeability of its leaves to water vapour. The mutual influences of many interacting factors determine the complicated relations of heat and moisture in the plant. The interaction of plants with air is a process that depends upon a large number of variables, both of the plant and its surroundings, acting in various combinations at any moment. The specific point of heat and amount of moisture in the atmosphere are very important factors for the plant processes like photosynthesis and transpiration.

Thermal and moisture control system will be placed in the lower edge of the CHOUSES. The moisture controlling system will be kept adjacent to the thermal control system. The main reason of keeping them in this place is that when the thermometers will find the need of changing temperature then the thermal controllers will release the heat energy

and this energy can be absorbed by the moisture which is released out from the moisture controllers, to decrease the density and rise up.

## d) Nutrients required by the plants:-

### **Macronutrients:**

Plants need large amounts of micronutrients relative to other essential nutrients.

- Three structural are: Carbon (C), Hydrogen (H), Oxygen (O)
- Nitrogen (N), Phosphorus (P), Potassium (K), Magnesium (Mg), Calcium (Ca), Sulphur (S)

### **Micronutrients:**

Compared with the macronutrients, the concentrations of the nine (9) micronutrients in plants may be very small. This does not mean they are not important. Deficiencies or excesses of the micronutrients can cause yield loss just as macronutrient deficiencies or toxicities. Micronutrients are often considered enzyme nutrients.

- Six micronutrients are Copper (Cu), Manganese (Mn), Iron (Fe), Zinc (Zn), Nickel (Ni), Cobalt (Co)
- Three micronutrients are anions: Chloride (Cl), Boron (B), and Molybdenum (Mo).

### Type of nutrition providing medium (other than soil):

**LIQUID (HYDROPONICS):** Hydroponics is a method of growing plants in water based nutrient rich solution. **Hydroponics does** not use soil; instead the root system is supported using an inert medium such as perlite, Rockwool, clay pellets, peat moss, or vermiculite. All the minerals will be given to the plants in a liquid medium which will contain all nutrients and salts like

Here are few advantages of adopting hydroponics.

- No Soil Needed For Hydroponics.
- Saves Water.
- Plants Grow Faster And Larger
- No Weeds, Pests, or Disease.
- Less Labour Intensive.
- More Control over pH.
- No Weeds, Pests, or Disease.
- Better Space Allocation.

Strawberries, Potatoes, Tomatoes, Mint, Basil, Lettuce, Cabbage, and Green-Beans are some of the plants which could be grown using Aeroponics.

### **Air (Aeroponics):**

Aeroponics is the process of growing plants in an air or mist environment without the use of soil or an aggregate medium. This is a system where the crop would be cultivated and prepared



without any soil or water medium. Plants growing here will just require to be sprayed with some minerals, salts, vitamins and other nutrients on their roots. And the plant here will grow to fulfil the requirement of people.

- It uses considerably less energy and water than other agricultural practices.
- Since, air acts as a medium to grow plants, considerably less maintenance is needed.
- In this system, the plant roots are exposed to sufficient oxygen and they can easily absorb it. This promotes quick and disease-free plants growth. Moreover, the mist used on roots can be sterilized to prevent plant disease.
- Aeroponics systems are 100% safe and help the environment by conserving water and reducing the amount of human labour involved.
- Aeroponics methods grow plants faster than any other conventional means.
- In Aeroponics you can easily clean your system and replace old plants with new ones.

### **Increase in desire agronomic characters:**

As per to meet the demand of large amount of fodder crops, fibre rich crops, etc. of both the animals and humans special seeds of genetically modified varieties and high yielding variety of seeds i.e. HYV seeds are used for supporting high production. But we know that the small calf (cow), infant (human) and the aged groups will consume organic foods naturally existing species of plant and animal breed. It is therefore required to take some measure for organic fibre crops (rote here only fibre rich crops are written because the experiment was conducted on a fibre crop and hibiscus). It doesn't means that the following activity is only for fodder and flowering crops. It may also be used for some cereals, legumes etc.). So we have tried an experiment: -

Aim: - To try out the increase in production in organic food (it could also be used in inorganic farming too).

Materials taken: - Two small pots with equal amount of soil, two hibiscus plants with same height of 15 cm each and weight of 20.25 grams each and number of leaves, two microphones and camera with watcher.

Procedure: - two pots of equal amount of soil were taken; small hibiscus saplings were taken and planted on both the pots (note that the hibiscus resemble one another in height and variety). The two saplings are to be kept undisturbed for 21 days under same pressure, temperature, and watering. When the two saplings grew up to the same height of 40 cm each, keep sapling 'An' undisturbed and take sapling 'b' and do the following:

- a) Vertically growing tips of sapling were cut.
- b) Horizontally growing tips of the sapling were cut.
- c) The cut parts of the saplings are to be layered by clay (whose particle's diameter is 0.0023mm or  $2.3 \times 10^6$  nm)
- d) The sapling is left undisturbed for a week.
- e) After one week several branching is observed around the cut part.

- f) The sapling is left undisturbed for one more week.
- g) The newly grown branches grew about 3 cm long.
- h) The same activity is performed for the newly grown branches also.

**Observation:** the height of sapling 'An' increases to 53.23 cm (increase of 13.23 cm in two weeks) whereas the height of the sapling 'B' increased to just 47.8cm (increase of 7.8 cm in two weeks). But their weights and number of leaves surprised us. We found that the plant 'A' weighed about 83g (increase of 62 grams in 5 weeks and one day) whereas the plant 'b' weighed about 102.3 grams (increase of 82.09 grams in 5 weeks and one day). We tried to research on this. We took the saplings under the microscope<sub>(s)</sub> view of  $\times 10$ ,  $\times 15$  and  $\times 20$  power lenses respectively and found the following:

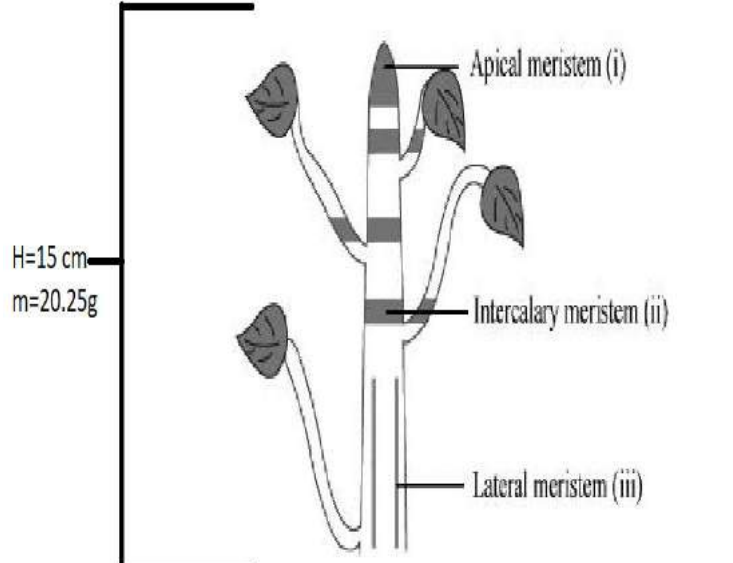
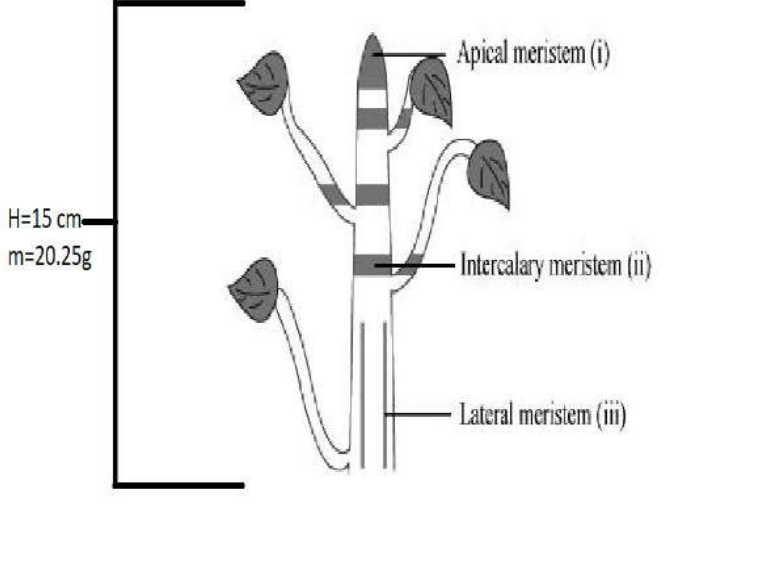
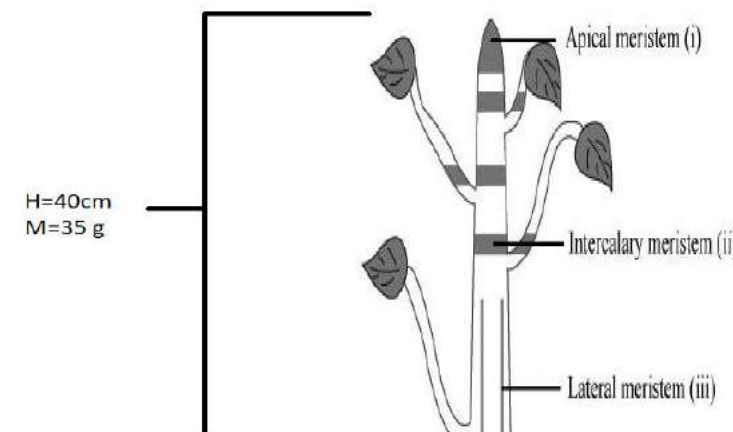
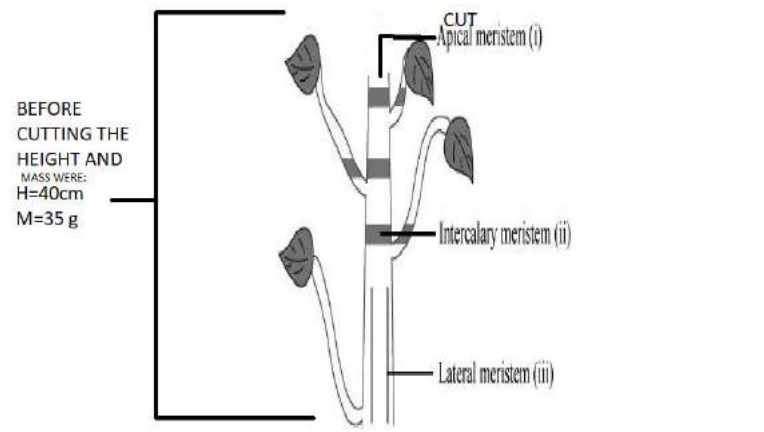
Plant 'A'	Plant 'B'
1. <u>Upper vertical tips (tips of apical meristem):</u> - There were about 220 to 240 actively dividing cells (meristematic tissues) per square centimetres.	1. <u>Upper vertical tips (tips of apical meristem):</u> - most of the area was dark and we just found 2 to 4 groups of cells; making only about 20 dividing cells per square centimetres.
2. <u>Lateral tips (lateral meristem):</u> - A number of small leaf branches (leaf buds) were about 6 and each with an average height of 1.3 centimetres.	2. <u>Lateral tips (lateral meristem):</u> - a number of leaf branches (leaf buds) were about 18 and their height ranged from 5 to 13 centimetres (average 9).
3. <u>No. of leaves (along with small budding leaves):</u> - There about 23 leaves in the total sapling.	3. <u>No. of leaves (along with small budding):</u> - There were about 37 leaves in the total sapling.
4. <u>Wideness of stem:</u> -1.6 cm	4. <u>Wideness of stem:</u> - 1.8 cm
5. <u>Length of root:</u> - 51 cm	5. <u>Length of root:</u> - 48 cm
6. <u>Spreading of root:</u> - Root was not so bushy but vertically long.	6. <u>Spreading of root:</u> - Root was so bushy but comparatively shorter.

There are basically three types of meristemetic tissue in a plant body namely: -

1. Apical meristem
2. Lateral meristem
3. Intercalary meristem

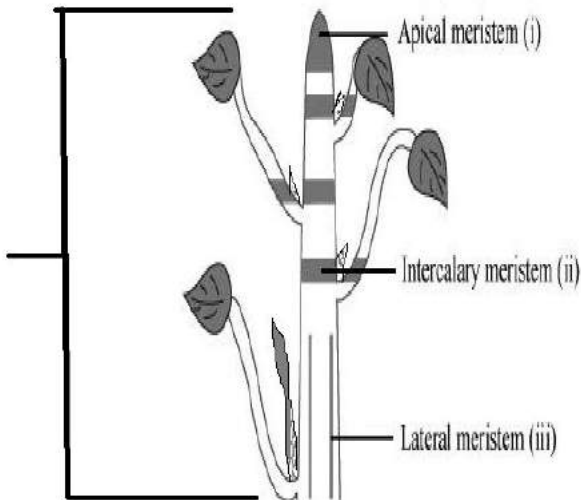
When we have cut the upper vertical tips of plant 'B' then the vertically active apical- meristem died and only few remained there. Due to this the nutrients of the plant could not utilized for the plant vertical growth. But it does not mean that the plant will remain in the same height forever. The nutrients taken by the roots and leaves were used by the lateral meristemetic tissues rather than the apical meristem. We all know that the lateral surface of any plant is greater than the

leaf buds of the tips. Due to the deactivation of apical meristem, lateral meristem participated on cellular division drastically. Several branching (due to lateral meristem) of the plant was seen. As the amount of lateral meristem is more than that of apical meristem, the plant requires more and more nutrients to support the growing cells. Due to this the root absorbs more nutrients and thus the weights, number of leaves were increased drastically. If we practice the same in our settlement then the produce will be more and nutrients will not get wasted for developing the stems of the crop. The more the apical meristem is cut the more the plants become bushy.

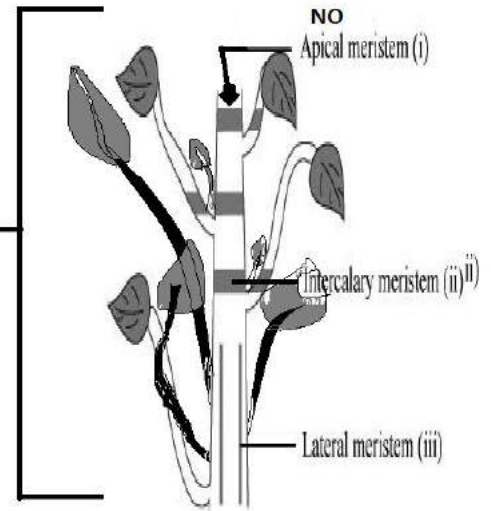
Plant A	Plant B
 <p>1) Initial height(h) and mass(m)</p>	 <p>1) Initial height(h) and mass(m)</p>
 <ul style="list-style-type: none"> <li>Second step conducted after three weeks of first step.</li> </ul>	 <p>2) Second step conducted after three weeks of first step</p>



H=53.23 cm  
(increase of  
13.23 cm)  
M=83.2  
(increase in  
38g)



H =47.8cm  
(increase of 7.8  
cm  
M=102.3g  
(increase in  
57.3g)



3) Third step conducted two weeks after the second step

3) Third step conducted two weeks after the second step

## The structure of a CHOUSE:

The CHOUSE will be like a room like structural building which will constitute several stairs where crops would be grown. This structure will help to grow several crops (weather of different variety) in small piece of land.

The layers will be something like this:



## b) In case of animals:

Animal husbandry is the scientific management of animal livestock. These animals will be reared in special places called Mhouses (meat houses). Here all care of the animal's livestock would be taken. Mhouses will constitute 60% of fowls and rest of animal, meats like mutton, beef, pork etc. The Mhouses will have temperature controllers to maintain the normal temperatures because some fowls namely chicken, duck, etc. can survive in a particular temperature and even disturbance in few degrees of temperature can kill the livestock. The Mhouses will even contain moisture controllers which will regulate the minimum needed per cent of moisture in the air. Other practices like IVF (in vitro fertilization), could be done to increase the animal produce. Music will also played (low frequency and amplitude ones) in the Mhouses as it has been approved that music has the potential to decrease indicators of stress such as heart rate and blood pressure in some animal species, as it can in humans. Hybrid animals or genetically modified animal would be used for increasing production and desired qualities.

## Type of food to be given according to age groups:

Infant agers (up to 1 to 2 years of age.)	Children( from the age of 3 to the end of adolescence)	Working age (18 to 58 years of age)	Aged group( above 59 years of age)
Children are to be fed with the mother's breast milk	This age group are to be fed with organic food including animal products	This group are allowed to special treated inorganic	This group is needed to be fed with proper organic food excluding animal meats. But are allowed to consume animal products only if in medication.
In addition to the appropriate amounts of carbohydrate, protein, and fat, breast milk provides vitamins, minerals, digestive enzymes, and hormones. Breast milk also contains antibodies and lymphocytes from the mother that help the baby resist infections.	Organic foods, produced without the use of synthetic pesticides, not only help build a healthier body, they can help boost levels of phytochemicals (plant compounds with anti-oxidant and anti-inflammatory activities) in plant foods, as well as lower pesticide residues in the diet.	As consumption of organic foods till the end of adolescence the adults will build a complete disease resistance and stronger body with a good harmonic flow, thus now in the age group of adults they will not have fear of consuming inorganic products.	In this age with lower digestive stamina and ability of performing any task will decrease. The organic foods will give them enough antioxidants for their skin maintenance and easy digestion.

## FEATURES OF HOUSES

There will be different kind of light system in Sudarsan in all houses. The entire house will have a sensor system for lights. If anybody enters to the house or in any room the lights will automatically start.

In each house there will be escalator instead of steps in the homes. It will make the works easier. It will also provide comfort of the person to reach up of the house.

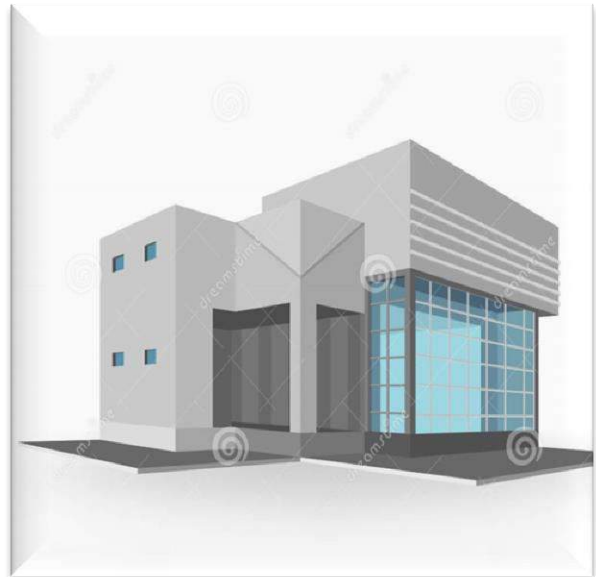
In Sudarsan each house will have a central ac system. In each room at top corners of house the ac will be installed.

## NEW AND MODERN FEATURES OF HOUSES WILL BE:-

VEIV: - This is a new kind of doorbell that will be used in all houses as well as in apartments. It will consist of a camera that will create an image of the person who is pressing the doorbell. This module can be connected to smart phones monitor etc. This device will also create a sound when it is used .To smart phones it will create a ringing bell if anyone uses it. If you are out of your home and some comes and press the doorbell, in your smart phone a ringing bell will come and you can see the image of the person that came to your home.

RAPID COOLING AND HEATING SYSTEM FOR HOMES: - It is also a modern system that will be used in all houses. It is a type of system that will provide heat/cold as per your wish when you are sleeping in your bed. This module will be attached in beds in all homes. You can control it by your smartphone as well as by remote. Just you have to cover your body by a blanket and on the machine then you can control the temperature as per your wish. (Hot/Cold)

AI ROBOTIC ARMS FOR KITCHEN: - It will be a new kind of modern system for kitchens. This will be a module with robotic arms that will be self-controlled. It will be programmed in such a way that it can prepare any kind of food. It will also be attached in every home kitchen. If suddenly it is not working properly or uncontrolled it will consist of a small remote for on/off. Then you can press the switch and it will turn off.



TEMPERATURE CONTROL FOR HOUSES: - It will also be a new kind of module that will be installed in every house. This module will control the temperature of all houses. You can set the temperature hot/cold as your wish. It will be controlled by your voice.

MACBIC: - It will be a mini robot that will act as a servant to your house. It will be controlled by your smart phone. You can also control it by your voice. It will do your work according to your wish. It is very safe to use because it will be controlled by you.

ALEXA: - It is a voice controlled musical system for homes. It will be a kind of musical system that will be used in all houses. Just you have to tell the music according to your wish and it will play. You can also connect it to your smartphone and operate.

WASHROOM FACILITIES: - In Sudarsan all houses will have modern washrooms. There will be sensor controlled basins, voice command bathtubs, showers and toilets. In sensor basins just we



have to show our hand then it will start working. In toilets and bathtubs only we have to speak start/stop and it will start functioning.

GESTURE CONTROLLED TV AND AC: - In Sudarsan every house will have gesture controlled TV and AC. You have no need to control it. Only you will have to gesture them with your hands and it will start functioning. You will have to control them with your smart phone for temperature (AC) and different channels (TV). You can also even control it by giving command. (on/off)

UV (ultra-violent) BULB: - In each house there will be UV bulb. The bulb will be made in such a way that it will produce more light and low rays that will not harm to any human. It will benefit by producing a larger amount of light and it can also help in producing some amount of heat energy that will convert into electrical energy. It will also help in killing of the deadly microbes that will be present in the clothes.

ROBOT VACCUM CLEANERS: - These will be AI (self-controlling) robot vacuum cleaners that will be installed in all houses. This module will also have two small robotic arms in it. It will also stick on the wall and ceiling of all the rooms of the house. With the help of robotic arms the robot vacuum cleaner will also collect small plastic wastes.

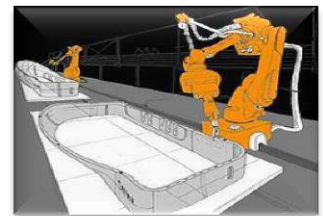
ROBOTIC ALARAM CLOCK: - This will be a small robotic system that will help you to wake up. It will have very small robotic legs. If you will set alarm then this module will come near will and produce ringing sound. This will be the best technology for those who will not wake up at time. This can also work as a normal clock.

Mini AIR PURIFIERS: - In each house small air purifiers will be installed so that it will also help in purifying the air. This module will be eco-friendly for the user. This module will purify the air in homes to stay healthy to all the people.

FAN REMOTE CONTROLLED: - In every house in Sudarsan this system will be there. This will be the fan that will be controlled by the smartphone. It can also be controlled by the remote including in it.

INDUCTION STOVE: - In Sudarsan instead of using gas stoves induction stove will be used. This module will be used in cooking of foods. It will be operated by electricity. So in kitchens the AI robot arms will prepare the food in the induction stove. It will be very safe to use.

Construction 3D Printing (c3Dp) or 3D construction printing (3DCP) refers to various technologies that use 3D\_printing as a core method to fabricate buildings or construction components. Alternative terms are also in use, such as additive construction,–Autonomous Robotic Construction System (ARCS) Large scale Additive Manufacturing (LSAM), or Freeform construction (FC), also to refer to sub-groups, such as '3D Concrete', used to refer to concrete extrusion technologies.



## EDUCATION

As we all know that education is the most powerful weapon. So in Sudarsan, for education there will be new and modern technologies for learning. That will make every student to learn in a very easy way. These new features of education will help the child to understand and gain knowledge in a different and easy manner.

### **THE MODERN FEATURES FOR EDUCATION -**

**LEARNING THROUGH HOLOGRAM:** - This will be a modern and well developed instrument that will be used in education. It will create any type of 3d model to understand it properly. The user will know more about the model (which he/she wants to know and learn) properly and in detailed manner. So in education this system will help the student to learn and understand anything in a very simple and easy way. The student can even learn about a topic in full details. The student will even enjoy in learning in this process.

**LEARNING BY DISPLAY BOARD:** - This will also be a new and modern technology that will be used in education. This system will be touchscreen. It will be operated by the teacher and will display in front of all students. The teacher will control it very easily. It will be very easy to use. Only the teacher will have to swap and use it. The students will also feel very happy in learning.

**LEARNING BY DISPLAY TABLET:** - This feature will be for students in education. It will also be touchscreen. This system will help the students to learn in a simple way. This system will be connected to display board (that is for the teacher). The teacher will be happy in teaching and the students will enjoy in learning in this process. The students will only have to carry the module and come to school and they can even learn in their homes in the display tablet.

**LEARNING BY SMARTPHONES:** - This will be also being a new kind of technology for education. Students can learn in their homes while he/she is not present in the classrooms. This module will connect by display board and the student can listen what the teacher is explaining in the class.

**LEARNING BY VIRTUAL GLASSES:** - The virtual reality glasses will be the best feature in the education. Students will have to wear the glasses and they will see the 3d images. Students have to set the topic in the glasses (what they want to see) and they can see. They will feel a realistic creature or thing coming towards them. Students will be very happy and enjoy by learning in this manner. This will be the best way of learning in such manner.

**DISPLAY SPECTS:** - This will be a new type of technology for learning for students. If the students are wearing the specs and looking into an object then the specs will show all the details of that object. Whether the object is living or non-living, this instrument will help in gaining more knowledge. For EX:-plants, animals, etc. Accept human body it will not show any details.

## **RECREATION**

Entertainment is very necessary aspect of human life, which one cannot do without as after the whole day heavy work, so every individual of our settlement have to need some recreation

(entertainment) for relaxation. The several types of recreational centres in our settlement (sudarsan) are:-

**Theatres**: - Movies are one of the popular entertainment options for an individual. So, the movies which will be played in the earth, that movie will also be played in our settlement

“sudarsan” with help of a satellite connected between the earth & our settlement.

**Amusement Parks**: - We are making amusement park in our settlement because to get relief from our daily tension & enjoy rides with family, we are placing more than 15+ of rides like roller coaster, dark ride, kiddie ride, water ride, simulator ride, dog gems, swing set, tilt-a-whirl, pendulum ride, ferries wheel, dragon ride.

**Television** :- Now-a-days we can't imagine our life without T.V because this is the best medium for communication, even it is one of the best medium for entertainment, it also encourage many things like :- education, motivation etc. The video which is being played in the planet earth will also can be played in our settlement with help television satellite (or) multi station system (MSS). We will also have a separate compartment for controlling the T.V program as a control room.

**Games**: - In our settlement there will be three types of games i. Indoor, ii. Outdoor, iii. Mobile games.

**Indoor games**: - In these games every individual of our settlement can play his/her favourite indoor games like chess, table tennis, ludo. These will help the people to free up their mind from their regular stress & keep them calm.

**Outdoor games**: - In these games every individual of our settlement can play his/her favourite outdoor games

Like cricket, football, volley ball, football etc. Playing outdoor games are very enjoyable & even it keeps us fit mentally & physically well.

**Mobile Games**: - This Type of games is going to be favourites of the children but we will not allow everyone to enjoy the games & there will also limitation for playing games for the children's.

## **Double shudders:-**

1)**Earththighs** :- This is a type of recreational activity in which every individual of our settlement “sudarsan” will be able to know about earth & the history of earth (or) what all the things that exist in the planet earth. This ultimately means that, what are the different types of condition of earth & how people used to live in earth. Every individual of our settlement will get to know more about the planet earth.





2) **Pastrofacts:** - In this recreational activity every one of our settlement “sudarsan” will get to know more about all the past facts which had occur in the blue planet (earth) by the ancestors of the people of our settlement. So everyone will get a detailed view about their ancestors like – how they struggle , how they used to live in the past, what all the problem that they faced, mainly this will be showing them how their lifestyle was & the difference between them & us. This will teach them (or) show them how brave their ancestors were.

3) **Hybrid Coaster:** - This is a beautiful scenario where there will be lot of thrill and enjoyment adventure. In this the artificial cave will be made where the Hybrid roller coaster will move inside the cave. In that cave the people will experience different kinds of experiences like sometime they will experience that it is raining inside, sometime they will fill that they came to an magical world, some time they will fill that something scaring them.

4) **Dinosaur age:** - This is an imaginary adventurous & unbelievable enjoyment. In this type of activity people will wear a 3d type of glasses with a very high-resolution of graphics they can enjoy the dinosaur age it means what all the things that happen with dinosaur they can visualise it in 3d. This will make them fun & they can enjoy a lot by seeing these all in 3d.

5) **Shooting range:** - This will be a type of activity where people can play a very attractive game. In this game there will be toy guns (that will fire plastic bullets) and people will have to fire on one another (like pubg mobile game) and loot their guns and bullets and the winner will get a prize. No one will get hurt because the game will be very safe. This game will be played on a very big ground like battle royale.

6) **Dino house:-** This will be a house where people can go alone or in groups in the house. Then after sometime 4-5 robot dinosaurs will come by running. People have to run and escape from them. But the dinosaurs will not cause any harm to any human. If the robot dinosaurs catch any human then after 10-20 seconds they will release. Then finally all the people have to come to exit. This will be a very horrifying game and full of thrill.

7) **Maze 3d:-** This will also be an activity in a big ground. Here people will have to find exit. This will be a very tuff game. Here using of compass and smartphone will not be allowed. Here people will be given 20-67 minutes of time and people have to come in the correct time. Here some secret door also will be there that people will don't know. If they will come in correct time then they will be given a prize.

8) **Fact Flicks:** - It is a house where an individual can watch the videos of the universe. ex- the birth of planet earth, story of mars etc.

9) **Meteor Thrust:** - This will also be one of the rides but with this ride everyone can get to know about our settlement “sudarsan”. It will be applicable for all the people above the age of ‘6’. This ride will be full of enjoyment. For a single ride it can carry up-to 30-40 peoples. With this everyone will get to know about all the sacrifice & hard work to build a mighty star behind our settlement ‘sudarsan’. We are planning to design this ride with futuristic transparent material.

## HEALTH

Health is a condition of social, mental and well-being of a person. So in Sudarsan every individual should maintain his/her health in a proper condition. Everyone must take a balanced diet every day. By taking always nutritious food there will be very less chance of getting diseases. Everybody should be strong enough to fight with any disease.

Nutritional food for an adult: - An adult should consume more fruits and vegetables. He/she should also consume whole grains like oatmeal, whole-grain bread and brown rice. An adult should also eat lean meat, and eggs. Fat-free or low-fat milk and milk products, or drinks with added vitamin D and calcium should also be consumed by him/her. Being an adult he/she should eat beans, peas, unsalted nuts etc.

Nutritional food for adolescents: - The food of adolescent should consume more fruits and vegetables daily. Adequate amount of rice and cereals, potatoes, fish, meat etc. should consume. Milk and dairy products and protein rich food like meat egg, etc. should be taken. Boys should eat more protein rich foods, carbohydrates etc.

Nutritional food for a baby: - Babies should be given Fruits and vegetables. Legumes and energy-rich oil or fat also should be given. Babies must drink plenty of milk and consume dairy products. And also meat, fish etc. should be given.

Nutritional food for pregnant women: - During pregnancy women should consume more protein and calcium for needs of the growing fetus. She should eat more legumes, eggs, broccoli, lean meat etc. She should take her diet very properly for the growing baby.

Nutritional food for children: - Children should consume more protein rich food like, meat etc. Dairy, grains, fruits and vegetables.

Physical health: - As every individual will eat all the nutritious food in Sudarsan. There also everyone should maintain their physical health. Every individual should do exercise every day to maintain their fitness. Every individual also should go the gym for exercise to maintain fitness and a strong body. Some tips that exercise can help you:-

- 1) By doing exercise it can help to prevent heart disease, stroke, diabetes, etc.
- 2) If you are in overweight then it will help you to lose your weight.
- 3) Human body is composed of most of water; staying hydrated is crucial to your physical health.
- 4) Always do yoga compulsory in every morning because it is the best way to stay fit by the following ways:-
  - A) Yoga increases flexibility, muscle strength of a person's body.
  - B) It will also improve a person's respiration, energy and vitality.
  - C) It will be helpful in cardio and circulatory health and maintaining a balanced metabolism in the body.
  - D) It will help to cure migraine disease, chronic back pain and lower back pain.

## **Social health: -**

Every individual of Sudarsan should maintain a good and eco-friendly society to free from the diseases. As being a citizen of the settlement everybody must and should take a step forward to

keep the surroundings clean. Everyone must have a good contact with other people in Sudarsan to maintain a healthy society. Nobody should throw any garbage in the surroundings or in the roads in Sudarsan. Some of the tips that one can follow to maintain his/her social health are: -

- 1) Always be regular at your work in proper time.  
For ex: - a person should always active to do his/her job. It will show your quality on others that how well you do.
- 2) Always show your interest whatever you do with your friends/relatives. It will make your and their connection
- 3) Listen properly whatever thing others will say. It will show that how you are paying attention on their words.

## Social Health

- Social health is getting along with others.
- Maintaining healthy relationships is one way of caring for your social health.
- Tips for maintaining healthy relationships:
  - Seek and lend support when needed.
  - Communicate clearly and listen to others
  - Show respect and care for yourself and others



## Mental health: -

Mental health is our emotional, psychological and social well-being. It helps us to determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood.

There are many tips to look after the mental health of an individual:-

- 1) If an individual is sad then he/she should tell about his feelings to anyone or to his friend then they can help him to free from his tensions.
- 2) Each one should take a proper balanced diet to make his/her brain healthy and stable.
- 3) Drink less; as we know that some persons will drink alcohol to change their mood (if he/her is in tension) so this should be reduced somewhat. So that they will not always be addicted to alcohol.
- 4) Always be active for ex: - keep exercising daily. It fresh a person's mind and increase your mental power. Don't be lazy at any time.
- 5) Always help to others as this is a very good habit and will change a person mood (if he/she is in anger) and the person will also feel very happy by doing this.
- 6) Always ask for help if a person is in trouble then each one member of Sudarsan should help the person and then his/her mind will be relaxed.
- 7) In any time if a person is getting more and more stress. For ex:- if he/she is doing any project work or studying and is not going in a planned manner then he/she should take an break and again start the work with full concentration.
- 8) Meditation after getting fresh up in morning and before the sleep respectively. Meditating for at least 30 minutes a day increases the IQ level, thinking capability, behaviour, and other things.
- 9) Drink plenty of water a day: drinking enough\ plenty of water (3 litres for an average man and 2.7 litres for an average woman.) keep our brain healthy as the brain remains away from struggle against the effects of dehydration, thus allow us to think clearly if even we let ourselves get dehydrated. It also helps in developing physical, emotional, and mental health.





**10) Practicing pranayama: it helps to inhale more air (or more oxygen). This exercise will help to decrease stress, anxiety and depression.**

<u>Illness</u>	<u>Curing methods</u>
1. Constipation	Eating prunes
2. Urinary tract infection	Try cranberry juice
3. Insomnia	Try cherry juice
4. Hair loss	Eating more salmon
5. Runny nose	Salt water rinse
6. Gassy and bloated	Activated charcoal
7. cracked heels	Hydrogenated vegetable oil on the feet
8. Anemic	Green vegetables, red meat, and liver
9. Sore muscle	Ice therapy
10. Dry and flakey skin	Try honey in affected areas
11. Toe nail fungus	Try tea tree oil
12. Rash and itchy skin	Try a clay mask
13. Dandruff	Baking soda (wet your hair and rub baking soda into your scalp and rinse)
14. Infected cuts	Apply honey in the affected areas
15. Arthritis or joint pain	Turmeric (sprinkle it over your food when cooking or turmeric tea)
16. Vertigo	Basil (add basil leaves in water and breath in steam to help with vertigo)
17. Weight problems	Good fats (don't be afraid of good fats like avocado, olive oil etc.)
18. Eczema	Magnesium bath salts
19. Headache	Acupuncture or peppermint oil (apply it in head)
20. pimples	Apple cider vinegar (apply on blemishes)
21. Nauseas	Ginger (add chopped ginger with lemon in hot water and drink)
22. Dry cuticle	Honey, aloe Vera, olive oil (use as a natural hand cream and massage onto cuticle)
23. Muscle cramps	Magnesium rich food and use both a supplement and Epsom salt in bath

24. Asthma	Fish oil and vitamin c rich food (intake fish oil in bath)
25. sweating	Potato (rub sliced potato under your arms)
26. nicotine cravings	exercise
27. smelly feet	Baking soda and lemon (soak feet in a mixture of water and baking soda and lemon to control smelly feet)
28. hip pain	Minerals rich food like boron, copper, manganese, silicon and zinc)
29. Digestion issue	Warm lemon water and probiotics
30. Irritable bowel syndrome	Peppermint (try a peppermint tea)
31. fatigue	Ginseng (try a ginseng tea)
32. dry, dull hair	Silica and zinc rich food like brazil nuts, eggs, fresh oysters etc.
33. chronic ache	Try cutting out dairy and processed sugar
34. hangover	Coconut water and bananas
35. urinary tract infections	A liver detox cleanse
36. Bad breath	Try oil pulling
37. PMS	Magnesium rich food (spinach, bar coli almond etc.)
38. Body odor	Drinking chlorophyll water
39. Dry cough	Try licorice root tea
40. Cold and flu	Try dark leafy greens
41. Weak brittle nails	Massaging coconut oil into your nail
42. Hiccups	Apple cider vinegar
43. Rosacea	Anti-inflammatory herbs
44. Indigestion	peppermint
45. Anxiety	Meditation
46. Period pain	Vitamin rich food like tuna, salmon, dairy products, orange juice etc.
47. Sore lower back	Pilates

## TRANSPORTATION

Transportation of sudarsan will be divided into two parts: Internal transportation and External transportation.

Internal transportation: the transportation done inside the settlement, it may be in the one set of ring or between the two rings of the settlement.

Most of the vehicle will run on the two principles:

1. Electricity

2. Heat

All the vehicle will link with the artificial intelligent and can be control easily. Most of the vehicle will be driverless and each vehicle can control by the smartphone. So as the vehicle will move with the help of electricity. It will produce some heat energy. So this heat energy will be again utilized by the vehicle itself to generate electricity. This can be done by the help of Radioisotope thermoelectric generator (RTG, RITEG).

External transport: The transportation done between the settlement and the outer space. So for this the sudarsan will have one special yard called sudarsan docking yard (SDY) where all the spaceships or any other vehicle can join and enter. It will be in the top of the middle road. It will be done to bring or send the goods and to bring the people from earth. Transportation can also be done between the earth and sudarsan. The waste will send to the SSF from sudarsan to make the useful products. As our settlement is spreading all over the space there will be a link between settlement through transportation for supply of goods, in any emergencies (or) for some other purposes. There will be interconnection between our settlements ("sudarsan"). So, we are planning to have some vehicle that will be helping us in this transportation.

If any individual of our settlement "sudarsan" want to travel somewhere for some purposes there is a need for a medium through which he can travel easily & safely in sufficient time. So we are planning to have a better transportation eco-friendly system that doesn't harm the environment (or) surroundings. The system is divided in two categories –

i) Internal Transportation. (Inside the settlement)

ii) External Transportation. (Outside the settlement)

We will be having different types of platform according to the vehicles e.g. Pod MimCars will run in different platform, trams will run while connected with cables, solar cars will be running in roadways, Fly tax run in air along with cables or tubes sometimes.

**Internal Transportation:** - We will be using various types of vehicles run in solar energy & doesn't harm environment. Various types of vehicles used in internal transportation are:-



**Pod MimCars:** - These cars are specially designed by our sudarsh team & gave a classy look. These cars can accommodate around 4 to 5 adult members. This car will have a max speed of about 75km/h. These cars will be having a separate platform in which it will run. It can run in both solar & electricity as well for emergency it will be loaded with a battery along with single charged battery it can run about 45to50 km at a max speed of 60km/h. It has many safety sensors so, every individual can travel easily safely & quickly to reach his/her destination. It comes with a 2,500 cc with full of comfort for every individual. This will be public transport in our settlement "sudarsan".



**Fly Tax:** - These are flying taxis which is innovately designed and it will fly in the air. It can accommodate 2 adults along with 1 child. Its loading capacity is around 300-400kg. These taxis will have a max speed of 20-39km/h. it will be used in residential areas. It will run in solar along with a cable (or) tubes. Unfortunately, if it's cable collapsed then it can adapt a "flyer" mode through which it can fly for some time & land safely. It will be driverless & only it will be used in residential areas. It will be driverless but it will have a control centre to control all the activities of the fly tax. These will have different models for different purposes. Models are velocopter, triosol, antiquer etc.



**Ministar Bus:** - These vehicles are like mini buses. We choose this because of his better compatibility & easy parking it can accommodate 6-7 members easily with a spacious compartment. This will be used as public transport. It comes with an app through which any of the individual can book it easily & efficiently. This will have a max speed of 75-86km/h. This will operate automatically & it will have a control room along with every area ground station. By which they have proper information of all vehicles running in a better manner. The bus having a cool feature is that it can expand & also it can compress according to the members sitting inside the mini bus. It has a load capacity up to 1 ton. It can run in solar & electric energy.

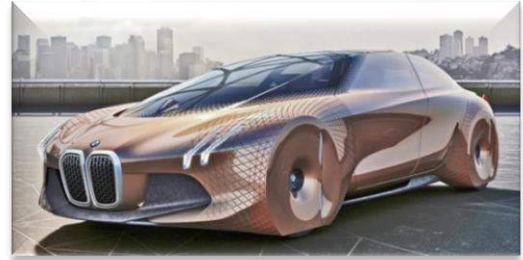


**Indi Trams:** - These vehicles are major part of public transport as it can carry 70-90 people at a single trip. Its max speed is around 140-160 km/h as it covers a large area for transporting people from one place to other. It will run in the presence of a driver also it will have a control room & in every area ground station. It can run in electric



energy at a single charge it can travel up-to 178 km per day. The interior will be minimal designed along with a fresh & classy look compartment people can be silted easily & comfortably as it is spacious. It also has a whole lot of safety features. It will be connected whole over our settlement "sudarsan". It will be connected with cables if it is unable to charge & there will be a supply of electricity to run the trams along with cables.

**Solar cars:** - These vehicles come under private property. Every Individual if he/she wants can have a compact size solar car. It fully works on solar as it is eco-friendly. It has a max speed of 150-157 km/h. It can be loaded with 4-5 passengers. It is easy to parking & driving as well because it will be added with advanced & highly adaptable features. It has a well maintained comfort zone around 2000 cc. its capacity to load is around 600-700kg. It comes with a multi functioning sensor (MFS) through which it can change the temperature accordingly inside the car along with a high quality music system to enjoy the journey. There are various models of solar car that we will be using in our settlement "sudarsan" like: - ranger 4d, bryo i6, multer dash (planned by team sudarsh).



**Struck - Truck:** - This is going to be a huge big & a heavy vehicle. It will be used in transportation of goods from one place to another. It has a max speed up-to 120km/h as it will have the most powerful engine as compare to other vehicles. It will run in solar energy & electricity. On a single charge it can travel up to 130 km per day. It will have around 2-3 tonnes of load capacity. This is not just a simple truck as it can go easily in residential areas (or) it can compress it size as well. This truck will be public. Many big companies (or) malls can have these trucks for transporting materials. At the starting part of struck - truck there will be a car attached to it & also it can be separated as well. Will run in roads very easily.



**Celebs Car:** - This is going to be fabulous & incredible designed professional celebrity cars. This car is mainly designed for the celebrities. It can accommodate 1-2 people & it has a load capacity of 250 kg. It will work in electricity, battery & solar. It can run in roads as well as it can also fly in the air. In road it has a max speed of 120km/h & in air it can reach max speed up to 150km/h. It is very comfortable & superior car it comes with around 3,00cc. It can only be used by celebrities of our settlement "sudarsan".



**Dronicfert:** - This is a drone shaped vehicle which will be used in internal transportation other than transportation of people or goods. It will be used to look after the settlement (or) for the maintenance of the settlement; it will also be





# SUDARSAN

used to check the surroundings, day-to-day matters etc. Unfortunately if any minor defect comes in our settlement then we will be using these vehicles to repair it. It can accommodate around 6-8 members. It has a load capacity up to approx. 1.5ton. It has a max speed up-to 110 km.

## EXTERNAL TRANSPORTATION :-

**SUNAKERSHIP:** - This spaceship will be used as transportation of people of our settlement "sudarsan." It can accommodate around 100-150 passengers. It will be highly advanced spaceship with all the



amazing features available which an individual need for survival. It will be having a control centre in our settlement to control all its activities. It will be have a high ultra volt 25k3i engine through which it can run up to 460m/s. the fuel which we will be using to run this spaceship are nitrogen to run it engine & also solar for some compartments inside the spaceship. Its capacity to load is around 10-15ton. We will be having around 5 to 10 this type of spaceship in our settlement "sudarsan."



**DESTROCORE:** - This is designed for its high velocity & capacity as well. The entire latest & unique feature is added to it. This will be used as goods transporter in our settlement "sudarsan". It will mainly use for transporting goods however it can also carry some passengers it can carry around 40 passengers along with a high loading capacity up to 25-30tons. It can carry many goods. According to the goods shape it can change its inside storing compartment so that it can load any type of goods easily. It has a max speed of 789m/s. the engine which we will be using in this vehicle is the "00eurite 467890234u91pulton" (planned by team sudarsh) which is extremely powerful. We will be using nitro & metallic hydrogen as a fuel for this spaceship. We will be having 10-15 these types of spaceship in "sudarsan".

**BATROCRAFT:-** This vehicle (or) spaceship will not be used for transportation of goods (or) passengers this spaceship will be used in battle's. We will use this





spaceship for battle (or) war as a personal safety for our settlement “sudarsan”. As there will be a high competition among various other settlements there is a chance of war so this spaceship can protect our settlement in these all types of matter. This vehicle is going to be a perfect deadly armoured vehicle along with nuclear. It has a max speed up to 800m/s. it can accommodate 25 members in its control quarter compartment. Will used metallic hydrogen & nitrogen as its fuel. It will be having all the advanced latest equipped weapons. . We will be having 3-5 these types of spaceship in our settlement “sudarsan”.

## COMMUNICATION

Communication system of the Sudarsan will be divided into two parts

- **Intra Sudarsan communication or ICS (Internal communication system)**
- **Inter Sudarsan communication or ECS (External Communication System)**

**Intra Sudarsan communication:** - It is the communication within the Sudarsan means that the communication between the different of the Sudarsan. This system will have been monitored by the one of the communication satellite of the Sudarsan 1(ISCS) Intra Sudarsan communication satellite.

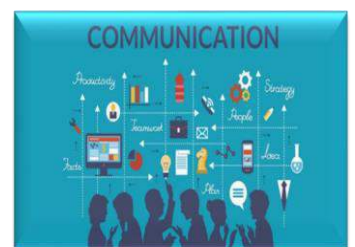
**Inter Sudarsan communication:** - It is the communication system between the Sudarsan and the Earth, even between the Sudarsan and outer space. This system will carry by the 2(ISCS) which mean Inter Sudarsan communication system.

This satellite will have link with the other satellite on the earth orbit, as the signal from emit from the Sudarsan first it will receive by the satellite present on the earth orbit. Then it will send it to the earth, where these signals will be receive by the network stations which will again send the signals back to the sudarsan in the similar process. In this way the communication between the sudarsan and the earth will take place.

To emit the signals we will use the Neutrinos, because it travels all over the space and even on the earth. It is the fastest medium to transfer the signals.

There will be two signal towers present in the sudarsan which will regulate the signals in the sudarsan. One of the signal towers will be directly connected to the 1(ISCS) which will present in the upper disk plate which will regulate signals within the sudarsan. One more signal tower will present at the lower disk plate, which will directly connected to the 2(ISCS) and will regulate the signal between the Sudarsan and the outer space and earth. This is how the communication will occur within and between the Sudarsan.

The Most relevant & effective way to express the views of any individual is by communicating (or) communication skill so, communication is a major aspect in day to day life without communication we can't express our views. In our settlement



“sudarsan” we will be having two types of communication [i. Internal Communication System (ICS)], [ii. External communication System (IES)]

### **ICS (Internal communication system):-**

In our settlement “sudarsan” we will be using Long-term evolution (LTE). This will be wireless & works on 4g speed. & in future we’re also planning to make this network more superior & faster. Even this will be used as internet for mobile. It can be used for various other activities such as video calls, chats, social media, music, news etc. This will mainly focus on domestic purposes like ph. Calls, internet, location etc.

### **ECS (External Communication System):-S**

In our settlement “sudarsan” we will be using internet for external communication & we will also using various communication satellite that will be connected to (MSS) Multi Satellite System. We will use advanced high frequency multi system satellite (powered by sudarsh team). It can also be used for radio telecommunication for communication.

### **Communication Process via Mobile Phone:-**

We are planning to have symmetrically designed plat form in which we will place cell towers very easily in our settlement. So every people those who are having a sim card their names will be registered in the nearest cell (place where they are living) controlled by MSC (mobile switching Centre) & other people which were living in other cell their no. will also registered in MSC but if anyone is trying to connect the call from one of the cell to other then first call goes to the caller MSC then it send to the receiver MSC called FSC (foreign Switching Centre).

First, every mobile phone (or) smart phone will introduced by a sim card for network connectivity. This will help them to change the radioactive signal to electric signal. Second, when any of the users make a call to some other people then first it goes to MSC then it send to FSC then connected to a cell tower nearer to the receiver then the call will connect according to the connectivity of the network.

For better & frequent connectivity also for a clearer voice we will be using Volte (voice-over LTE). It will be HD voice so no error & better option for a HD voice calling. It’s work on 4g network.

### **MSS (Multi Station System):-**

This is a new telecommunication system. This will be having a ground station in the planet earth & our settlement “sudarsan”. In a single station every work will be organized. Satellite for this system will also be designed it have some unique & advanced features. The satellite can transmit & receive the signal from one station (from earth) also it can transmit & receives from another station at the same time (from our settlement). It doesn’t require any other thing to transmit or receive the signal it can send signal directly to the station.

## **Spread communication (external communication):**

The construction of each new Sudarsan supports the next steps of space colonisation. As with more number of increasing Sudarsans, using the minerals from lunar base, Martian base, asteroid etc., slowly with the help of Sudarsan the human life could be spread across the galaxy then universe. To keep a network with all Sudarsan / Sudarsan bodies. We planned a spread branched system of communication. We will be using connective satellites (**CS**)

Normally a satellite could focus at one single point for message receiving and transmitting. But here as the Sudarsan\Sudarsan bodies are spread across the galaxy a satellite would be receiving messages from all the direction (i.e.  $360^\circ$ ), whether from x axis, y axis, or z axis (taking the mean position of **CS** as 0). Thus to avoid the problem of communication we will be keeping three signal transmitters and three signal receivers in **CS**. Thus by this three pair system any signal could be sent or received by the **CS** from \to the other **CS**.

The signals will be sent in two types:

**1) Through radio waves:**

These radio waves are actually a type of electromagnetic waves. These waves have a huge speed and could travel approximately at the highest speed of  $3 \times 10^8$  m/s (speed of light). These waves have a frequency ranging from 300GHz to 30Hz. The wavelength of the electromagnetic spectrum is longer than infrared light i.e. 1mm. These waves will not harm to any of the Sudarsan bodies due to the electrostatic protection in their outer most layers.

**2) Through neutrinos:** the neutrinos are a part of the atom. These neutrinos can also come in use for communication due to their high speed which is 299,338,000 m/s. the interesting thing about them is that they could pass through any obstacle (human, asteroid, etc.) without causing any harm to them.

## **CLOTH IN SUDARSAN**

Mainly in the sudarsan people will wear lighter cloth because it will protect from the heat and Radiations. Compare to the lighter cloth the dark cloth observe more heat and Radiations. Even it does not emit this radiation back so the dark cloth can affect the health of the people. But the lighter clothe absorb less radiation and heat. Even what it absorb that will be radiated after some time. In this way the people will fill comfortable. It is just happens because in the white substance atom the electron does not shift from one shell to the another there for the radiation does not produce hence any heat and light energy will not absorbs.

Pigment migration and colour abrasion may occur with dark and intense colours. Pilling is unavoidable and may also result from adhesion of inessential fires. Any flat fabric will roughen during use and patina and shiny areas may develop. Pulled threads are to be expected if snagging with sharp objects occurs. A slight stripy effect may occur due to the material. Light colours show up soiling and jeans rub more quickly and noticeably than dark colours. Slight fading in case of UV radiation is unavoidable, particularly with intense colours. Dark and intense colours tend to suffer wet abrasion. Minor discrepancies in colour and texture among production batches cannot be ruled out.



**Characteristic properties – SYNTHETIC LEATHER** Patina, shiny areas and/or lightening may occur during the course of wear/use. Light coloured upholstery fabrics show up soiling and jeans rub more quickly and noticeably than dark colours. Extraneous discolouration, e.g. caused by cushions with inadequate colour-fastness cannot be avoided. The surface tends to be susceptible to scuff marks. Slight fading in case of UV radiation is unavoidable, particularly with intense colours. Minor discrepancies in colour and texture among production batches cannot be ruled out.

**Characteristic properties – MICROFIBRE** Pigment migration and colour abrasion may occur with dark and intense colours. Pilling is unavoidable and may also result from adhesion of extraneous fibres. Patina and shiny areas may develop during use. Light colours show up soiling and jeans rub more quickly and noticeably than dark colours. Lightening may occur in frequently used places and the intensity of the impression may wane during the further course of use. Fading due to UV radiation is unavoidable, particularly with intense colours. Dark and intense colours tend to suffer wet abrasion. Minor discrepancies in colour and texture among production batches are unavoidable and may occur.

**Characteristic properties – Fabric with chenille yarn** Pigment migration and colour abrasion may occur with dark and intense colours. Pilling is unavoidable and may also result from adhesion of extraneous fibres. Any flat fabric will roughen during use and patina and shiny areas may develop. Pulled threads are to be expected if snagging with sharp objects occurs. A slight stripy effect may occur due to the material. Light colours show up soiling and jeans rub more quickly and noticeably than dark colours. Changes in the direction of the nap of the fabric (sitting marks), shimmering (change in colour with different lighting angles) and flattening of the chenille effect are unavoidable with chenille fabrics. Slight fading in case of UV radiation is unavoidable, particularly with intense colours. Dark and intense colours tend to suffer wet abrasion. Minor discrepancies in colour and texture among production batches cannot be ruled out.

**Characteristic properties – Embossed microfiber** Pigment migration and colour abrasion may occur with dark and intense colours. Pilling is unavoidable and may also result from adhesion of extraneous fires. Patina and shiny areas may develop during use. Light colours show up soiling and jeans rub more quickly and noticeably than dark colours. Lightening may occur in frequently used places and the intensity of the impression may wane during the further course of use. Fading due to UV radiation is unavoidable, particularly with intense colours. Dark and intense colours tend to suffer wet abrasion. Minor discrepancies in colour and texture among production batches cannot be ruled out.

Characteristic properties of upholstery fabrics made of natural fires and/or natural fibre mix  
Pigment migration and colour abrasion may occur with dark and intense colours. Pilling is unavoidable and may also result from adhesion of extraneous fires. Any flat fabric will roughen during use and patina and shiny areas may develop. Pulled threads are to be expected if snagging with sharp objects occurs. A slight stripy effect may occur due to the material. Light colours show up soiling and jeans rub more quickly and noticeably than dark colours. Slight fading in case of UV radiation is unavoidable, particularly with intense colours. Dark and intense

colours tend to suffer colour abrasion. Minor discrepancies in colour and texture among production batches cannot be ruled out.

The x-static fibre has a layer of pure silver permanently bonded to the surface of a textile fibre. The process is such that the fibre, with its silver layer, retains traditional textile and tactile characteristics. It also exploits two well-known properties of the silver thermal conductivity (the highest among metal) and its ability to eliminate a wide spectrum of odour causing bacteria. The X-static fibre will use in the sudarsan to make the clothes and various other textiles.

## SOCIAL FACTORS

### **THE PREAMBLE OF SUDARSAN CONSTITUTION**

**WE, THE PEOPLE OF SUDARSAN, HAVING SOLEMN-  
LY RESOLVED TO CONSTITUTE SUDARSAN INTO A  
SOVEREIGN SOCIALIST SECULAR DEMOCRATIC RE-  
PUBLIC AND TO SECURE TO ALL ITS CITIZENS:  
JUSTICE, SOCIAL, ECONOMIC AND POLITICAL;  
LIBERTY OF THOUGHT, EXPRESSION, BELIEF,  
FAITH AND WORSHIP;  
EQUALITY OF STATUS AND OF OPPORTUNITY;  
AND TO PROMOTE AMONG THEM ALL  
FRATERNITY ASSURING THE DIGNITY OF THE INDI-  
VIDUAL AND THE UNITY AND INTEGRITY OF THE  
NATION;**

### BASE OF CONSTITUTION :-

WE THE PEOPLE OF SUDARSAN, The constitution has been drawn up and enacted by the people through their representatives, and not handed down to them by any outside powers.

**SOVEREIGN:** - people have supreme right to make decision on internal as well as external power can dictate the government of sudarsan.

**SOCIALIST:** - wealth is generated socially and should be shared equally by society. Government should regulate the ownership of land and industry to reduce socio-economic inequalities.

**SECULAR:** - citizens have complete freedom to follow any religion. But there is no official religion. Government treats all religious beliefs and practices with equal respect.

**DEMOCRATIC:** - A form of government where people enjoy equal political rights, elect their rulers and hold them accountable. The government is run according to some basic rules.

**REPUBLIC:** - The head of the state is an elected person and not a hereditary position.

**IUSTICE:** - citizens cannot be discriminated on the grounds of caste, religion and gender. Social inequalities have to be reduced. Government should work for the welfare of all, especially of the disadvantaged groups.

**LIBERTY:** - There are no unreasonable restriction on the citizens in what they think, how they wish to express their thoughts and the way they wish to follow up their thoughts in action.

**EQUALITY:** - All are equal before the law. The traditional social inequalities have to be ended. The government should ensure equal opportunity for all.

**FRATERNITY:** - All of us should behave as if we are members of the same family. No one should treat a fellow citizen as inferior.

## **LAWS OF CONSTITUTION :-**

In our settlement people should follow the following fundamental rights: -

1. **RIGHT TO EQUALITY:** - The constitution says that the government shall not deny to any person in sudarsan equality before the law or equal protection of the law.
2. **RIGHT TO FREEDOM:** - This law means the absence of constraints. In practical life it means absence of interference in our affairs by others or any individual or the government.
3. **RIGHT AGAINST EXPLOITATION:** - The constitution mentions three specific evils and declares these illegal. First, the constitution prohibits 'traffic' in human beings. Second, our constitution also prohibits child labour and forced workers.
4. **RIGHT TO FREEDOM OF RELIGION:** - Every religious group is free to manage its religious affairs. Everybody has the right to follow their own religion.
5. **RIGHT TO EDUCATIONAL AND CULTURAL RIGHTS:** - Any section of citizens with a distinct language or culture have a right to conserve it. Admission to any educational institution maintained by government or any private institution cannot be denied to any citizen on the ground of religion or language.



6. RIGHT TO CONSTITUTIONAL REMEDIES: - When any of our rights are violated we can seek remedy through courts. If it is a fundamental right we can directly approach the supreme court.

Separation of powers: - Powers will be divided into three parts: Legislative, Executive, Judiciary.

Legislative: - This branch is the only branch that can change or create laws. This branch is given extensive powers by the constitution.

Executive: - This branch executes the laws. It maintains law and order.

Judiciary: - This branch interprets and applies laws for specific causes. This function is performed by the judge.

Use of (AI): - In our settlement the judge will be an artificial intelligence who will find out the person's guilty by scanning him and the person will not lie to the judge and work will be easy. The police will also be in the form of AI (artificial intelligence) so the guilty person would be easily caught. As there is no way to escape for a guilty person the crime rate will not increase.

Quantum computer: - Quantum computer is a very powerful computer which can solve the complex problems that would otherwise take billions of years for today's computer to solve. This will be used in the Sudarsan for massive implication for research in health care, energy, environmental system, smart materials and more, it will be used in AI developing and in education.

## EXECUTIVE SUMMARY

"The best idea always has been the useful for the world". In our project the best ideas are the method of asteroid utilization, the asteroid will be utilized by keeping it into orbit of the earth, energy generation where we use the graphene based energy generation system then the gas composition and the acceleration of the Sudarsan. We also focused on the agriculture to sustain the environment of the Sudarsan. Sudarsan is the first step of universal colonization. The above written topics were about a single Sudarsan. After the successful completion of the first settlement the process will continue for spreading human life throughout the space.

## Bibliography

<https://www.marketing91.com/five-types-of-communication/>

<https://favim.com/image/300686/>

<https://www.homestratosphere.com/home-theaters/>

<https://www.sunny.com.tr/sn43dlk010-tnr-109-ekran-uydu-alicili-led-tv>

<https://www.theverge.com/2019/12/3/20992527/apple-iphone-ipad-top-games-2019-mario-kart-call-of-duty-fortnite>

<https://www.nbcnews.com/mach/science/moonbasesbeingplannednowmayshowushowlivencna855826>

<https://www.scifiideas.com/>

<https://study.com/academy/subj/science.html>

<https://www.intelligenttransport.com/>

<https://www.wired.co.uk/topic/science>

<https://www.engadget.com/entertainment/>

[https://www.supplychain247.com/article/future\\_transportation\\_and\\_autonomous\\_flying\\_cars](https://www.supplychain247.com/article/future_transportation_and_autonomous_flying_cars)

[https://encryptedtbn0.gstatic.com/images?q=tbn:ANd9GcRUFzEodEK\\_C9wxLnHPv7jDeoLscVviKWf\\_o3SX3CJ6q2yjZjn&s](https://encryptedtbn0.gstatic.com/images?q=tbn:ANd9GcRUFzEodEK_C9wxLnHPv7jDeoLscVviKWf_o3SX3CJ6q2yjZjn&s)

[https://en.wikipedia.org/wiki/Radioisotope\\_thermoelectric\\_generator](https://en.wikipedia.org/wiki/Radioisotope_thermoelectric_generator)

[https://en.wikipedia.org/wiki/Space\\_debris](https://en.wikipedia.org/wiki/Space_debris)

<https://www.sciencedirect.com/>

[https://en.wikipedia.org/wiki/Construction\\_3D\\_printing#/media/File:FreeFAB\\_Tower\\_-\\_Robotic\\_3D\\_printing\\_production\\_line.jpg](https://en.wikipedia.org/wiki/Construction_3D_printing#/media/File:FreeFAB_Tower_-_Robotic_3D_printing_production_line.jpg)

<https://i.pnimg.com/236x/74/2d/dc/742ddca0e4b3481eba1ffde22c944ecf.jpg>

[https://res.cloudinary.com/teepublic/image/private/srU0RSQv8/c\\_crop,x\\_10,y\\_10/c\\_fit,h\\_945/c\\_crop,g\\_north\\_west,h\\_1038,w\\_1038,x\\_127,y\\_54/l\\_upload:v1565806151:production:blanks:vdbwo35fw6qtfw9kezw/fl\\_layer\\_apply,g\\_north\\_west,x\\_-238,y\\_165/b\\_rgb:ffffff/c\\_limit,f\\_jpg,h\\_630,q\\_90,w\\_630/v1567161794/production/designs/5791180\\_0.jpg](https://res.cloudinary.com/teepublic/image/private/srU0RSQv8/c_crop,x_10,y_10/c_fit,h_945/c_crop,g_north_west,h_1038,w_1038,x_127,y_54/l_upload:v1565806151:production:blanks:vdbwo35fw6qtfw9kezw/fl_layer_apply,g_north_west,x_-238,y_165/b_rgb:ffffff/c_limit,f_jpg,h_630,q_90,w_630/v1567161794/production/designs/5791180_0.jpg)

<https://www.voanews.com/silicon-valley-technology/can-better-electric-motor-save-planet>

<http://www.online-rpd.org/journal/view.html?uid=25&vmd=Full&>

<https://www.nbcnews.com/mach/science/moon-bases-being-planned-now-may-show-us-how-live-ncna855826>

<https://interestingengineering.com/what-would-a-martian-colony-look-like>

<http://www.scifiideas.com/inspiration/starting-point-cruithne-report/>

<https://www.intelligenttransport.com/transport-articles/66776/sky-high-flying-taxis-public-transport/>

<https://edition.cnn.com/style/article/dubai-autonomous-public-transport/index.html>

<https://www.wired.co.uk/article/trams-edinburgh-manchester-uk-transport-system>

<https://www.engadget.com/2016/03/13/inhabitat-week-in-green-bmw-next-vision-100/>

[https://favpng.com/png\\_search/space-ship](https://favpng.com/png_search/space-ship)

<https://hi-static.z-dn.net/files/d6b/d0b63fbe1705fbc9dbd7a86b5f0e6775.png>

<https://media.voltron.voanews.com/Drupal/01live166/styles/sourced/s3/201904/458F5EC74E7C4905-AB30-3D1D87C75FC6.jpg?itok=YwrHYH57>

<https://www.youtube.com/watch?v=cIGV9Xuvdd4>

<https://5.imimg.com/data5/YU/ML/MY-1190559/light-diffusion-sheet-500x500.jpg>

[https://encryptedtbn0.gstatic.com/images?q=tbn%3AANd9GcTCZ0ezs6b9mDDoPBW6oQqzs\\_rVO2FRB0lhpNBt4NmnJKS3CRyx](https://encryptedtbn0.gstatic.com/images?q=tbn%3AANd9GcTCZ0ezs6b9mDDoPBW6oQqzs_rVO2FRB0lhpNBt4NmnJKS3CRyx)

[https://www.tapplastics.com/uploads/products/polycarbonate\\_clear-l.jpg](https://www.tapplastics.com/uploads/products/polycarbonate_clear-l.jpg)

<https://sc02.alicdn.com/kf/HTB1STBNLpXXXXb4XXXXq6xXFXXz/4mm-house-sun-roof-shelter-material-polycarbonate.jpg>

[https://images.ctfassets.net/cnu0m8re1exe/3Qa77sn5Gu2yBbik9PYQDR/9c5b90134909b51fefdb369757e5ecd7/Graphene\\_Illustration.jpg?w=650&h=433&fit=fill](https://images.ctfassets.net/cnu0m8re1exe/3Qa77sn5Gu2yBbik9PYQDR/9c5b90134909b51fefdb369757e5ecd7/Graphene_Illustration.jpg?w=650&h=433&fit=fill)

[https://media.nature.com/lw800/magazine-assets/d41586-018-02773-w/d41586-018-02773-w\\_15507794.jpg](https://media.nature.com/lw800/magazine-assets/d41586-018-02773-w/d41586-018-02773-w_15507794.jpg)

<https://www.evolving-science.com/sites/default/files/field/image/Internet-Data.jpg>

<https://scx1.b-cdn.net/csz/news/800/2017/magneticpac.jpg>

<https://www.zigya.com/application/zrc/images/qvar/SCEN9014536.png>



<https://upload.wikimedia.org/wikipedia/commons/7/7e/VertiCrop.jpg>

[https://images.slideplayer.com/37/10748234/slides/slide\\_8.jpg](https://images.slideplayer.com/37/10748234/slides/slide_8.jpg)

<https://encrypted-tbn0.gstatic.com/images?q=tbn%3AAND9GcSOv4MiJTauNijGWjl-cdlwFtkp2rBT5Yhca0ArI019QACKMI-K>

<https://cdn.marketing91.com/wp-content/uploads/2018/03/Types-of-Communication.jpg>

<https://thumbs.dreamstime.com/z/new-house-models-vector-design-white-background-88018168.jpg>

[https://en.wikipedia.org/wiki/99942\\_Apophis](https://en.wikipedia.org/wiki/99942_Apophis)

<https://en.wikipedia.org/wiki/Hydroponics>

<https://en.wikipedia.org/wiki/Aeroponics>

<https://www.medicalnewstoday.com/articles/154543>

<https://laurenslatest.com/50-easy-tips-for-a-healthy-lifestyle/>

<https://www.andiappanyoga.com/yoga-therapy-various-diseases/>

<https://en.wikipedia.org/wiki/Silicon>

[https://en.wikipedia.org/wiki/Titanium\\_alloy](https://en.wikipedia.org/wiki/Titanium_alloy)

[https://en.wikipedia.org/wiki/Electric\\_motor](https://en.wikipedia.org/wiki/Electric_motor)

<https://www.vedantu.com/ncert-solutions/ncert-solutions-class-9-social-science-contemporary-india>

[https://www.researchgate.net/profile/Mohammad\\_Khan24/publication/324864014/figure/fig4/AS:626727369838594@1526434857308/Superior-fundamental-properties-of-graphene-sheets.png](https://www.researchgate.net/profile/Mohammad_Khan24/publication/324864014/figure/fig4/AS:626727369838594@1526434857308/Superior-fundamental-properties-of-graphene-sheets.png)

